

**“ASSESS THE EFFECTIVENESS OF VIDEO ASSISTED TEACHING
ABOUT HAZARDS OF PLASTICS AND ITS SAFE DISPOSAL
AMONG THE HOUSEWIVES RESIDING AT SELECTED URBAN
AREA AT CHOOLAI IN CHENNAI”.**

**M.Sc (NURSING) DEGREE EXAMINATION
BRANCH –IV COMMUNITY HEALTH NURSING**

**COLLEGE OF NURSING
MADRAS MEDICAL COLLEGE, CHENNAI-3.**



**A dissertation submitted to
THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY,
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**In partial fulfillment of the requirement for the degree of
MASTER OF SCIENCE IN NURSING**

APRIL - 2014.

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This is to certify that this dissertation titled **“Assess the effectiveness of video assisted teaching about hazards of plastics and its safe disposal among the housewives residing at selected urban area at Choolai in chennai”** is a bonafide work done by **D.Geetha,M.Sc(N) II Year**, College of Nursing, Madras Medical College, Chennai-03, submitted to **The Tamil Nadu Dr. M.G.R. Medical University**, Chennai in partial fulfillment of the university rules and regulations towards the award of the degree of **Master of Science in Nursing. Branch- IV, Community Health Nursing** under our guidance and supervision during academic period from **2012-2014**.

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LIST OF ABBREVIATIONS

S.NO	ABBREVIATIONS	EXPANSION
1	DF	Degrees of freedom
2	SD	Standard deviation
3	CI	Confidence Interval
4	Fig	Figure
5	H1 & H2	Research Hypothesis
6	M. Sc (N)	Master of science in Nursing
7	χ^2	Chi-square test
8	NO	Number
9	VAT	Video Assisted Teaching

ABSTRACT

Community health education services are an economical and powerful means of raising standard of community health, especially for the future generations. Community is considered as a best setting for the positive health and prevention of diseases, awakening health consciousness in which the country grows and develops. A pre experimental study was conducted to assess the effectiveness of video assisted teaching about hazards of plastics and its safe disposal among the housewives residing at selected urban area at Choolai in chennai. Totally 100 housewives, those who met the inclusion and exclusion criteria were selected by convenient sampling technique. A pretest was conducted by using a structured questionnaire, followed by video assisted teaching program. After 7 days posttest was taken. The result of the posttest score revealed that the video assisted teaching program had its impact on improving the level of knowledge regarding hazards of plastic and its safe disposal among housewives. The overall mean score of pre-test was **10.46** with the S.D. **3.84**, whereas in post-test the overall mean score was **17.98** with S.D. **1.74**. The t-test value was **24.03** which is statistically significant at $p < 0.005$ level of significance. After video assisted teaching program none of the housewives were having inadequate knowledge, 19.0% of them were having moderate knowledge and 81% of them were having adequate knowledge and the score is statistically highly significant ($p = 0.001$). The study finding implied that the education had a vital role in improving the knowledge of housewives regarding hazards of plastic and its safe disposal. Housewives play a vital role in family and in community and what they learn is likely to be applied during the rest of their lives thereby they can bring a big change for a better future.

CHAPTER I

INTRODUCTION

“Say no to Plastic, let this planet alive”

“Reduce, Reuse, And Recycle”.

“While there are environmental impacts to paper bags, if you look at the lifespan of plastic bags, there's no comparison... It'll threaten wildlife for years to come”.

- *The Seattle times.*

“Let every individual now think and act as a responsible trustee of the earth, seeking choices in ecology, economics and ethics that will provide a sustainable future, eliminate pollution, poverty and violence, awaken the wonder of life and foster peaceful progress in the human adventure.”

- John McConnell, founder of International earth day.

Plastics are used on a daily basis throughout the world. The “plastic” is a common word that is used for many materials that are synthetic and semi-synthetic in nature. The term “plastic” is derived from a Greek word “plastikos” which means “fit for moulding”. Plastic bags are light, sturdy and easy to carry. They are cheaper than paper. From the mid 1980s, the use of plastic bags became common for carrying daily groceries from the store to vehicles and homes.

Plastic is not biodegradable. When buried plastic will choke the drainage and when burnt plastics will emit poisonous gases. To produce plastic one has to use the petroleum products. Plastic production and processing require the use of toxic chemicals. Many manufacturing plants that produce these chemicals also produce hazardous waste and pollute the air. Five of the top six chemicals commonly used by the plastic industry are propylene, phenol, ethylene, polystyrene, and benzene. Inhalation and ingestion of these chemicals can cause serious occupational hazards among people.

Plastic waste is recycled in India in an “unorganized” way. 60% of the plastic-waste collected and segregated gets recycled back into materials for further processing into consumer products, while the balance is left unutilized. Regulations and legislations are being enforced in some States of India, but it is not found in the majority of the states of India. Moreover, we have not come to a stage where we can tackle issues related to plastic production, use and its disposal.

The increasing awareness of the environment has contributed to concerns regarding our lifestyles and our indiscriminate disposal of wastes. During the last decade, we have been trying to address this complex problem, more aggressively. The municipal solid waste (MSW) produced annually, has begun to decrease, e.g. from 211.5 million tons in 1995 to 209.7 million tons in 1996. Recycling rates and composting rates are increasing. Disposal in landfills is decreasing (from 60.9 to 55.5% in 1996). Waste disposal by combustion is also increasing. This is primarily due to the increased efficiencies of the new incinerators and their ability for the removal of particulates and harmful gases.

Plastics are a small but a significant component of the waste stream. It is encouraging to note that the amount of plastics being recycled has grown significantly. In 1997, about 317 million kg of high density polyethylene (HDPE) bottles and 294 million kg of polyethylene terephthalate (PET) bottles were recycled. Recycling of durable goods, such as automotive parts, carpets, electronics and appliance housings and parts are being explored. Environmental compatibility and recyclability are being considered during the designing of new parts. Life cycle analyses and management are also being studied as tools for decision making.

Plastic has become a part of every aspect of human living. It is made important from birth by its use in the form of catheters, masks, sheets etc..Till the grave with its multiple facets of application.It is being used for packaging, carrying, storing and wearing, that which made the life more risky to its expose.It has become the health and environmental hazards.

The modern risk extra to basic environmental risks are unsafe use of dangerous chemicals, inadequate disposal of toxic waste and environmental hazards, noise, industrial, pollution, unsafe chemicals in toys and household products may also harm children. Emerging potential environmental threats to health include global climate change, ozone depletion, contamination of persistent organic pollutants and chemicals and other hazards and emerging disease, one among them is the plastic products and its use.

Segregation of waste at the source is very important after segregation the material goes to a small industry for re-cycling. Decomposable and bio-degradable is segregated from dry waste such as paper and plastic.

The hazards of plastics are numerous. The land gets littered by plastic bag, garbage, presenting an ugly and unhygienic seen. The “THROW AWAY CULTURE” results blockage in the drainage system, health hazards, spreading of water borne disease. This littering also reduces the rate of rain water percolating. The soil fertility deteriorates as the plastic form part of a manure remain in the soil for years.

1.1. NEED FOR THE STUDY:

Plastic is everywhere in today's lifestyle. It's used for packaging, protecting, serving, and even disposing of all kinds of consumer goods. Through industrial revolution, mass production of goods started and plastic seemed to be a cheaper and effective raw material. Today, every vital sector of the economy starting from agriculture to packaging, automobile, building construction, communication or InfoTech has been virtually revolutionized by the applications of plastics. Use of this nonbiodegradable (according to recent studies, plastics can stay as long as 4500 years on earth) product is growing rapidly and the problem is what to do with plastic-waste.

Studies have linked the improper disposal of plastic to problems as distant as breast cancer, reproductive problems in humans and animals, genital abnormalities and much more. If a ban is put on the use of plastics on emotional grounds, the real cost would be much higher, the inconvenience much more, the chances of damage or contamination much greater. The risks to

the family health and safety would increase and, above all the environmental burden would be manifold. Hence the question is not 'Plastics vs No Plastics' but it is more concerned with the judicious use and re-use of plastic-waste.

India has witnessed a substantial growth in the consumption of plastics and an increased production of plastic waste. On this basis, the total plastics consumption is projected to grow by a factor of six between 2000 and 2030. The consumption of various end products is combined with their corresponding lifetimes to calculate the total waste quantities. The weighted average lifetime of plastics products was calculated as 8 years. Forty-seven percent of the total plastics waste generated is currently recycled in India; this is much higher than the share of recycling in most of the other countries.

The recycling sector alone employs as many people as the plastics processing sector, which employs about eight times more people than the plastics manufacturing sector. Due to the increasing share of long-life products in the economy, and consequently in the volume of waste generated, the share of recycling will decrease to 35% over the next three decades. The total waste available for disposal (excluding recycling) will increase at least 10-fold up to the year 2030 from its current level of 1.3 million tones.

Plastic causes serious damage to the environment during its production, process and during its disposal process. So the only way to reduce the hazards of plastic pollution is to reduce the use of plastic and thereby force a reduction in its production.

The major chemicals that go into the making of plastic are highly toxic and pose serious threat to living beings of all species on earth. Some of the constituents of plastic such as benzene and vinyl chloride are proven to cause cancer, and other gases and liquid hydrocarbons spoil earth and air. The noxious substances emitted during the production of plastic are synthetic chemicals like ethylene oxide, benzene and xylenes. Besides hitting hard the ecosystem. Which is already fragile, these chemicals can cause an array of maladies ranging from birth defects to cancer, damage the nervous system and the immune system and also adversely affect the blood and the

kidneys. And, many of these toxic substance are emitted during recycling of plastic too.

No doubt that plastic waste is polluting the soil and killing innocent animals who ingest unknowingly, however, it definitely has many uses and instead of banning it completely we need to create greater awareness. Strict action must be taken against those found littering. One of the major culprits of this is the innumerable roadside vendors selling various articles packed in plastic. More needs to be done to recycle plastic waste for putting it to long term use We can avoid using plastic, but cannot banning completely so awareness of the harm people are causing to the environment by their carelessness is the only way to make a change. If every person took the initiative of keeping the environment clean of all pollutants, our world would be a much healthier place.

The hazardous waste generated in the country per annum is estimated to be around 4.4 million tonnes. while as per the estimates of Organization for Economic Cooperation and Development (OECD) derived from correlating hazardous waste generation and economic activities, nearly five million tons of hazardous waste are being produced in the country annually. Twelve States of the country (Maharashtra, Gujarat, Tamil Nadu, Orissa, Madhya Pradesh, Assam, Uttar Pradesh, West Bengal, Kerala, Andhra Pradesh, Karnataka and Rajasthan) account for 97% of total hazardous waste generation.

The top four waste generating states are Maharashtra, Gujarat, Andhra Pradesh and Tamil Nadu. It is very hard to dispose of used plastic. You can't throw them in the open. Disposed plastic will affect the environment for many years to come. The burning of plastics produces persistent organic pollutants (POPs) known as furans and dioxins. These pollutants circulate globally and have been associated with adverse effects in humans, including immune and enzyme disorders. They are classified as possible human carcinogens But you should find a way to dispose the plastic that are already in use. The best and most popular way to dispose of plastic without affecting the

environment is to recycle it. Plastic can be recycled any number of times. You can give your plastic bags to many stores who will give it to recycling companies. The only problem with this method of plastic disposal is that the various types of plastics have to be segregated before reusing them.

The recent studies and statistics throw the light that Plastic waste is an important problem in this contemporary approach and more rural community residents are affected mainly due to improper disposal methods and poor knowledge among the community people regarding the disposal strategies. So the investigator is very much interested in doing this topic.

The environmental hazards due to mismanagement of plastic waste include the following aspects:

- A littered plastic spoils the beauty of the city and chokes the drains and makes important public places filthy.
- Garbage containing plastics, when burnt may cause air pollution by emitting polluted gases.
- Garbage mixed with plastics interferes in waste processing system and may also cause problems in landfill operations.
- Recycling industries operating in non-conforming areas pose unhygienic problems to the environment.
- Plastic bags cause over 1,00,000 sea turtle and other marine animal deaths every year when animals mistake them for food.

Plastic waste is a major environmental and public health problem in India, particularly in the urban areas. India is the fourth highest Asian importer of plastic waste behind Honk Kong, Philippines, and Indonesia. 20% of solid municipal wastes in India are plastic. Average Indian uses one kilogram of plastics per year, the world annual average is an alarming 18 kg. But too many do it as our cities have huge populations. The country yet to take a serious view of the issue and have a uniform nationwide law for indiscreet disposals of plastics. People should be educated on the proper ways of plastic usage and the disposal.

1.2. STATEMENT OF THE PROBLEM:

“Assess the effectiveness of video assisted teaching about hazards of plastics and its safe disposal among the housewives residing at selected urban area at Choolai in Chennai”.

1.3. OBJECTIVES OF THE STUDY:

- To assess the pre test knowledge about the hazards of plastics and its safe disposal among housewives residing at choolai.
- To assess the effectiveness of video assisted teaching about the hazards of plastics and its safe disposal among housewives residing at choolai.
- To assess the post test knowledge level regarding hazards of plastics and its safe disposal among housewives residing at choolai.
- To compare the pretest and post test knowledge about the hazards of plastics and its safe disposal among housewives residing at choolai.
- To associate the findings with the selected demographic variables.

1.4. OPERATIONAL DEFINITION:

Effectiveness:

It is defined as a significant gaining of knowledge on hazards of plastics and its safe disposal. It will be measured by the mean difference between the pre and posttest practice scores.

Video teaching:

It refers to the planned and recorded activities on the hazards of plastics and its safe disposal among housewives, in order to gain knowledge on hazards of plastics.

Hazards of plastics:

It refers to the ill-effects which are occurring due to the improper degradation of plastics in the environment.

Housewives:

The women who are residing at home, not going for a job.

Plastic waste:

In this study plastic waste refers to waste that is produced from plastic materials such as bottles, plates, tubes, boxes, films, buckets, bags etc.

1.5.ASSUMPTIONS:

The study assumes that:

- Housewives will have some knowledge regarding management of plastic waste.
- Knowledge encourages to fostering desirable habits.
- Video Assisted Teaching Program is an acceptable teaching strategy.
- Housewives are the best mediators to transfer the knowledge to others.

1.6. HYPOTHESIS :

- H_1 : There will be a significant difference between the mean pre-test and post-test score of housewives with knowledge regarding hazards of plastics.
- H_2 : There will be a significant association between the post-test level of knowledge and selected demographic variables of housewives regarding hazards of plastics.

CHAPTER - II

REVIEW OF LITERATURE

Review of literature is one of the most important steps in the research process. It is an account of what is already known about particular phenomena. The main purpose of literature is to convey to the readers about the work already done and the knowledge and ideas that have been already established on a particular topic of research. A literature review is an account of the previous effort and achievements of scholars and researchers on a phenomenon.

- **S.K.Sharma,(2005)**

The review of literature in a research report is a summary of current knowledge about a particular problem and includes what is known and not known about the problem. The literature is reviewed to summarize knowledge for use in practice or to provide a basis for conducting a study. This chapter is divided into following aspects,

PART – I : Related literature

PART – I – A: Review Of Literature Related To Plastic

This will be divided into five different categories.

1. Hazards of plastic use on human health,
2. Hazards of plastic use of the environment,
3. Knowledge of plastic waste management,
4. Habits on management of plastic waste,
5. Generation of plastic waste in various households and cities.

PART – I– B: Review Of Literature Related To Video Assisted Teaching

PART – II: Conceptual framework

PART – I - A

1. Studies Related To Hazards Of Plastic Use On Human Health

Brophy JT, Dematto R, Keith MM, et al (2012) conducted a study to find mortality pattern among workers exposed to styrene in the reinforced plastic dot building industry revealed over all, 860 deaths (standardized mortality ratio (SMR) 1.09, confidence interval 1.02-1.17). The excess mortality was accounted for esophageal cancer (n=12, smr 2.30, cl-1.19-4.02), and prostate cancer (n=24, SMR-1.71, CL-1.09-2.54) Accidents (N=94 smr 1.26, CL 1.02-1.53). Among 2,062 highly exposed workers urinary tract cancer increased with duration of employment.

Lithner D, Nordensvan I (2012) conducted a study on storage of serum in plastic and glass containers may alter the serum concentration of polychlorinated biphenyl (PCBs), which is a plastic content. The information on storage in glass (n=28) versus plastic containers (n=173) was analysed. Results revealed the higher PCB values in the serum stored in plastic container. The proportion CB detects in both sub samples did not differ.

Patwary MA, Sarker MH (2011) conducted a randomized prospective study on plastic or metal stents for malignant stricture of common bile duct repair was compared in terms of cost and efficiency in the treatment. A cross sectional study was conducted to find the respiratory effects of occupational polypropylene flock exposure.

Rolf U. Halden (2010), the worldwide annual production of plastics will surpass 300 million tons. Plastics are indispensable materials in modern society, and many products manufactured from plastics are a boon to public health (e.g., disposable syringes, intravenous bags). However, plastics also pose health risks. Of principal concern are endocrine-disrupting properties, as triggered for example by bisphenol A and di-(2-ethylhexyl) phthalate (DEHP). This literature review summarizes information from more than 120 peer-reviewed publications on health effects of plastics and plasticizers in lab animals and humans. It examines problematic exposures of susceptible populations and

also briefly summarizes adverse environmental impacts from plastic pollution. Ongoing efforts to steer human society toward resource conservation and sustainable consumption are discussed, including the concept of the 5 Rs”i.e., reduce, reuse, recycle, rethink, restrain”for minimizing pre- and postnatal exposures to potentially harmful components of plastics.

Wang N,Chen JS,et.al(2005) conducted a study on Polychlorinated biphenyl are known to decrease thyroid function, sperm count and fertility increases the risk of testicular cancer. The study conducted on albino rats to know the efficiency of PCBs. The results showed no change in serum testosterone, but estradiol levels increased in 30 days treated animals ,T3 and T4 levels decreased and TSH levels increased in both 15 and 30 days treated animals. Body weight, epididymal weight, siolic acid, glycerol phosphoryl chlorine(GPC)and sperm count were decreased only in 30 days aroclor treated groups. There was a positive association between mortality and intoxication dose and severe polychlorinated biphenyl poisoning acutely affected mainly the liver.

Lovekamp-swan T,Davis BJ (2003) conducted a study to find extraction of diethylhexyl phthalate (DEHP) from total protein nutrient (TPN) solution polyvinyl chloride bags showed a range 0.39/ml (depending on lipid concentration and storage condition) of DEHP (content of plastic) leaking from TPN is smaller than DEHP, leaking from PVC tubing during hemodialysis. DEHP toxicity in human reaches from blood transfusion and leads to pulmonary insufficiency and pulmonary edema.

2. Studies Related To Hazards Of Plastic Use To The Environment

Lithner D,Larson A, Dave G.(2011) Conducted a study on environmental and health hazard ranking and assessment of plastic polymers based on chemical composition. Plastics constitute a large material group with a global annual production that has doubled in 15 years (245 million tonnes in 2008). The knowledge of human and environmental hazards and risks from chemicals associated with the diversity of plastic products is very limited. Most chemicals used for producing plastic polymers are derived from non-renewable crude oil, and several are hazardous. These may be released during the

production, use and disposal of the plastic product. In this study the environmental and health hazards of chemicals used in 55 thermoplastic and thermosetting polymers were identified and compiled. This study has identified hazardous substances used in polymer production for which the risks should be evaluated for decisions on the need for risk reduction measures, substitution, or even phase out.

Eisted, R., Larsen, A., and Christensen, T., (2009) conducted a study on the collection, transfer and transport of waste. These activities all use energy and fuels, primarily of fossil origin. Electricity and fuel consumptions of the individual processes were reviewed and greenhouse gases (GHG) emissions were quantified. The emission factors were assigned a global warming potential (GWP) and aggregated into global warming factors (GWFs), which express the potential contribution to global warming from collection, transport and transfer of 1 tonne of wet waste. The estimated GWFs varied from 9.4 to 368 kg CO₂-equivalent (kg CO₂-eq.) per tonne of waste, depending on method of collection, capacity and choice of transport equipment, and travel distances. The GHG emissions can be reduced primarily by avoiding transport of waste in private cars and by optimization of long distance transport, for example, considering transport by rail and waterways.

Shah A, Hasan F, Hameed A, Ahmed S. (2008) conducted a study to find heavy metals contamination in surface and ground water supply of an urbanity. The final water supply of four treatment plants and lighty tube wells at Delhi were surveyed for cadminn chromium, copper, iron, lead, manganese, nickel, selenium, and zinc. On this most of them are plasticizers. Result showed high levels of lead, manganese, cadmium, copper, and iron compared to the Indian standard specification of 5mg cit/.Thus study revealed the chemical toxicity to the water which cause ill effects to human health.

Larsson A ,Dave G(2005) conducted a study on polychlorinated biphenyls (PCBs) in the composed amended soil of a landfill site to determine if any of the mixture of PCBs.Aroclor1254 and aroclor 1260 are retained in the composed amended soil, despite atmospheric loses possible due to the peak

summer (100-117F). The method was standardized by taking 10gm of ground soil sample in duplicate and spiked separately with known Concentration of aroclor 1254 solution prepared in a trexonr. The maximum total PCBs concentrations on dry wet basis were found as 1.2/g. These compounds have adverse effects on the organisms by having deposited at the top of food web including human being.

3. Studies Related To Knowledge On Plastic Waste Management

M.Sc nursing students (2008) conducted a study at ullal to assess the knowledge of nursing personnel on plastic waste management by using a structured knowledge questionnaire. The study revealed that among 100 subjects, 64% had poor knowledge, 36% had average knowledge and none of the subjects had good or excellent knowledge on plastic waste. Based on these, the students gave health teaching using A.V. aids and post test revealed 18% of subjects with excellent knowledge and 34% with good knowledge. The investigators then concluded saying that continuing nursing education on plastic waste management was effective in improving the knowledge of subjects on waste management.

Reiss A.(2005) conducted a descriptive survey at 62 Zehrs shopping centre at Ontario to assess knowledge of people of all age groups regarding reuse of plastic bags. It is evident that majority of people's knowledge was in line with the desired behaviour of using reusable bags; they believe that the behaviour of using plastic bags is harmful to the environment and unsustainable. Hence, efforts should be made to decrease or eliminate this behaviour. The investigator further said that the reuse of the bag has not become a permanent habit. Hence, the need to build up strategies to encourage the public for using reusable bags.

4. Studies Related To Habits On Management Of Plastic Waste

Fujiwara T, Thanh NP.(2011) conducted a survey to assess the quantity and composition of household solid waste as well as household habits and behaviours of plastic waste discharge. The data was collected from

130 households using interview technique. The average household solid waste generation rate was 281.27 g/cap/day. The compostable and recyclable shared 80.74% and 11% respectively. Plastic waste discharge indicated inappropriate practices and unhygienic disposal methods. The study indicates the need to adopt right disposal and recycling techniques to avoid health hazards.

Reiss A.(2008) conducted a correlative study by Duluth Entertainment Convention Centre at Minnesota to examine the relationship between subjects attitude and self reported habits in respect to littering. People of all ages and all type of social backgrounds litter although there are some variations. Men and women are equally likely to litter, people under the age of 15 are least likely to litter, people under the age of 25 are likely to litter when in a group, people over the age of 25 are mostly likely to litter when alone. Littering is influenced by social context, so for e.g. people may litter in some circumstances e.g. when unobserved. The investigator thus said that littering is the most common and an extremely important environment issue and there is a need to integrate number of approaches to reduce the litter

Rann PM, Hill HJ.(2005) Environmental protection council of Australia wanted to ban single use of plastic bags by the end of 2008. They conducted campaign on the use of reusable bags for shopping since 2005 and they assessed the existing habits of people related to plastic bags. Structured interview technique was used to gather data from 580 participants. 18% of adult participants said that they used their reusable bags all the time, 3% of the school children knew that their parents always used reusable bags, 80% of respondents owned reusable bags. 64% said that it was not convenient to carry the bags all the time because they did not fit easily in to the pockets or hand bags. 25% of the people said that they simply forget to carry the reusable bags with them. The investigator thus said that people have adequate knowledge on effect of plastic, yet, they need stimulation and reinforcement to cultivate the habit of carrying their own bags for shopping.

Mercer A, Hall J, et.al.(2005) conducted a descriptive study to determine the waste plastic recycling habits and management of waste in Ontario. The study revealed that the Plastics represent 7-8% of the residential waste stream. Plastic packaging represents 81% of total plastics found in the residential waste stream; plastic bottles represent 31% of total plastics, non-recyclable film at 29%, recyclable film at 19%, polystyrene at 10%, wide mouth tubes at 6%, other rigid plastics 5%. Polyethylene bottles are collected from 91% of household with recycling device. Other plastic such as wide mouth tube, recycle film and polystyrene are collected from 1/3rd (1.1 to 1.3 million) of household through recycling program. Hence, the investigator concluded that the plastics from municipal commercial and industrial source are managed by recycling program in Ontario.

5. Studies Related To Generation of plastic waste in various households and cities.

Shaxson L. UK (2010) conducted a study on plastic carrier bags have been drawing the attention of the public and politicians. The research analyzed the actual environmental aspects of consumption and use of plastic carrier bags and assessed the effectiveness of the proposed regulation in Israel. Since plastic bags are provided free of charge, people have a tendency to use these bags excessively, therefore a rigorous educational program should address this trend. The study was recommended that environmental load imposed by the bags is more a politically correct issue than an actual environmental hazard, and therefore the means for reducing their use should not include a high levy or total elimination of these bags.

Gakahu DC, Chemweno J.(2008) conducted a study on acute exposure to ionizing radiation, the dose absorbed by the victims has to be rapidly and accurately assessed in order to choose an appropriate medical treatment. Tooth enamel and bone biopsies measured by EPR spectrometry are often used as dose indicators, due to the good radiation sensitivity and the stability of EPR radiation-sensitive signals. The study was recommended that

few plastics present the required characteristics to be used in case of a radiation accident.

Shah G. Brands (2007) conducted a study on scavenging and recycling medical waste in UK, the data was collected using a variety of technique based on the problem on formal representative sampling for fixed populations and adapting, sampling for roaming populations (such as scavengers). Extremely hazardous items (including date expired medicines, used syringes, knives, blades and saline bags) were scavenged, repackaged and resold to the community. Some HCE employees were also observed to sell hazardous items directly to scavengers, and both employees and scavengers were observed to supply contaminated items to an informal plastics recycling industry. Corruption, a lack of accountability and individual responsibility were also found to be contributors. Finally study was concluded that most cases the individuals involved with these activities did not understand the risks. Although motivation was often for personal gain or in support of substance abuse.

Gakahu DC, (2006) conducted a study to estimate household solid waste generation. It conducted in the year 2004 had revealed that over 3 million inhabitants who generate a combined total of over 2,400 tons per day of solid wastes, out of which 20% comprises of plastics.

Sinha MA, Hissain Z. (2006) conducted a study to Plastic bread-bag clips have been identified as a cause of local perforation or obstruction at many sites in the gastrointestinal tract. The study was recommended that the elimination or redesign of the clips, to prevent their being swallowed and becoming impacted in the small bowel or to allow them to be identified in the gastrointestinal tract by conventional radiography.

Rann PM, Hill HJ.(2005) Conducted a comparative study in Dhaka city to determine the amount of solid waste generated, in 2005. The data was compared with previous available data of 1992 survey which indicates yearly increase in waste generation is around 10.43% annually. This signifies the generation of plastic has increased in par with growth and economy of the country. This trend in the growth of plastic waste is expected to continue in the

near future. This study also reveals that per capita plastic consumption in Dhaka city is 9 kg/year while the national average stands at 3.6 kg/cap/year. Hence, the investigators urged the government to take prompt action to reduce the plastic waste generation.

ITDG (intermediate technology development group),(2004) conducted a study puts the daily solid MSW generation at a relatively higher value of 2,400 tones. The study estimates solid waste generation of about 253 kg per person per year. Hence, the investigator concluded the waste generation increased to a reasonable level with increase in population and as per growth of industries.

Angela C Kasper, Andréa M Bernardes et.al.(2004) conducted a study on Radiation-induced electron paramagnetic resonance (EPR) signals were studied in samples of plastic materials of various origin: buttons, details of underwear, elements of mobile phones, etc. Plastics from personal goods were found to be a potentially acceptable material for use as individual EPR dosimeters with sensitivity threshold below 5 Gy. Strong influence of solar light radiation on EPR spectra was observed for unexposed and gamma-irradiated plastic samples, which may affect drastically the results of dose reconstruction.

Horwood, (2003) conducted a study on the effect of styrene on lung function and oxidative stress in occupationally exposed workers in plastic factory. The mean value of serum cytochrome c in styrene-exposed subjects was found to be 1.1 ng/ml (0.89-1.89) while in control its levels were under detection limit (0.05 ng/ml). The study was recommended that styrene inhalation by workers leads to increased level of oxidative stress, which is supposed to be the cause of lung damage.

JICA (Japan International cooperation Agency), (1998) conducted a study, estimated that about 1,450 tons of Municipal Solid Waste was generated daily in Nairobi in the late 1990s. The study put the MSW (Municipal Solid Waste) per capita generation is 0.67 kg/day, which translates to about 245 kg per person per year.

PART – I – B

Review of literature related to effectiveness of video assisted teaching

The definition adopted by John.M.Last is the process by which individuals and groups of people learn to behave in a manner conducive to the promotion,maintenance or restoration of health.

Changing concepts following the Alma-Ata Declaration adopted in 1978,the emphasis has shifted from “ prevention of the disease” to “promotion of healthy lifestyle” to encourage people to adopt and sustain health promoting lifestyle and practices.

No health education can be effective without audio visual aids. This helps to simplify unfamiliar concepts bring about understanding where words fail, reinforce learning by appealing to more than one sense and provide a dynamic way of avoiding monotony.

The health education method used for this study is the combination of Mass Media that is video teaching .It was carefully prepared under the guidance of experts.This method of teaching will ;

- 1.Dramatized by arousing interest
- 2.Persuade the onlookers to adopt recommended practices
- 3.Uphold the principles of seeing is believing and learning by doing and
- 4.Bring desirable changes in the behaviour performing with the use of new practice

This commutation has been found to have a high educational value .For example;

Shiney Mary D (2011) Conducted a quasi experimental study on the effectiveness of the video teaching programme in practice of post operative exercise among selected LSCS mothers.The sample size consists of 60 antenatal mothers who have undergone elective LSCS, purposive sampling technique was used .The results show that after video teaching 12 (20%) had inadequate

practice,37(62%) had moderately adequate practice and 11 (18%) had adequate practice.

Jovanna . v (2010) conducted on experimental study on the effectiveness of video health teaching of knowledge and practice regarding antenatal exercise among pregnant women in Muthanenthal PHC Manamadurai.The study population comprises of pregnant women with 5-7 months of gestation attending antenatal clinics in Primary Health Center.The sample consisted of 60 pregnant women; the purposive sampling technique was used to select samples level of knowledge classified as adequate,moderately adequate and inadequate before and after health teaching .At pre-test ,adequate 11(18.3%) moderately adequate 39(69%) and inadequate 10(16.7%) and inadequate 9(15%).It shows the effectiveness of video assisted health teaching.

Tony Botticelli,A.et al.,(2005) Conducted a study to investigate the effectiveness of a computer based video support system during practical training of manual skills a competency related to periodontal treatment .Eighty –four students were randomized in to 9 groups: 5 experimental and 4 control groups.On the whole the students in the experimental group performed significantly better in 9 of the 21 procedures tested.These results suggest that this computer based video support can be effective aid in the teaching of manual skills related to oral health care.

PART – II

CONCEPTUAL FRAMEWORK

A conceptual framework is a type of intermediate theory that has the potential to connect all aspects of the inquiry. They take different forms depending upon the research question of the problem.

The present study is based on the concept of J. W. Kenny's open system model. According to J. W. Kenny all living systems are open. They are in a continuous exchange of matter, energy and information, which results in varying degree of interaction with the environment from which the system receives input and gives output in the form of matter, energy and information.

Input:

Input can be matter, energy and information from the environment. In the present study the environment refers to community setup (choolai) and input refers to the collection of demographic data from samples and assessing the level of knowledge on hazards of plastic use and its safe disposal by using questionnaire.

Throughput:

The matter, energy and information are continuously processed through the system which is also called complex transformation, known as throughput process is used for input (i.e.) energy and information for the maintenance of homeostasis of the system. In the present study it refers to video assisted teaching regarding hazards of plastic use and its safe disposal.

Output:

After processing the input and throughput, the system returns to the output matter, energy and information to the environment in an altered state. Change is a feature of the process that is observable and measurable as output, which should be different from that which is entered into the system. In the present study gain in level of knowledge regarding hazards of plastic use and its safe disposal is considered as output and measured by posttest.

Feedback:

Feedback gives information of environmental responses to the system;

output is utilized by the system in adjustment, correction and accommodation to the interaction with the environment. In the present study, It refers to analysis of the posttest.

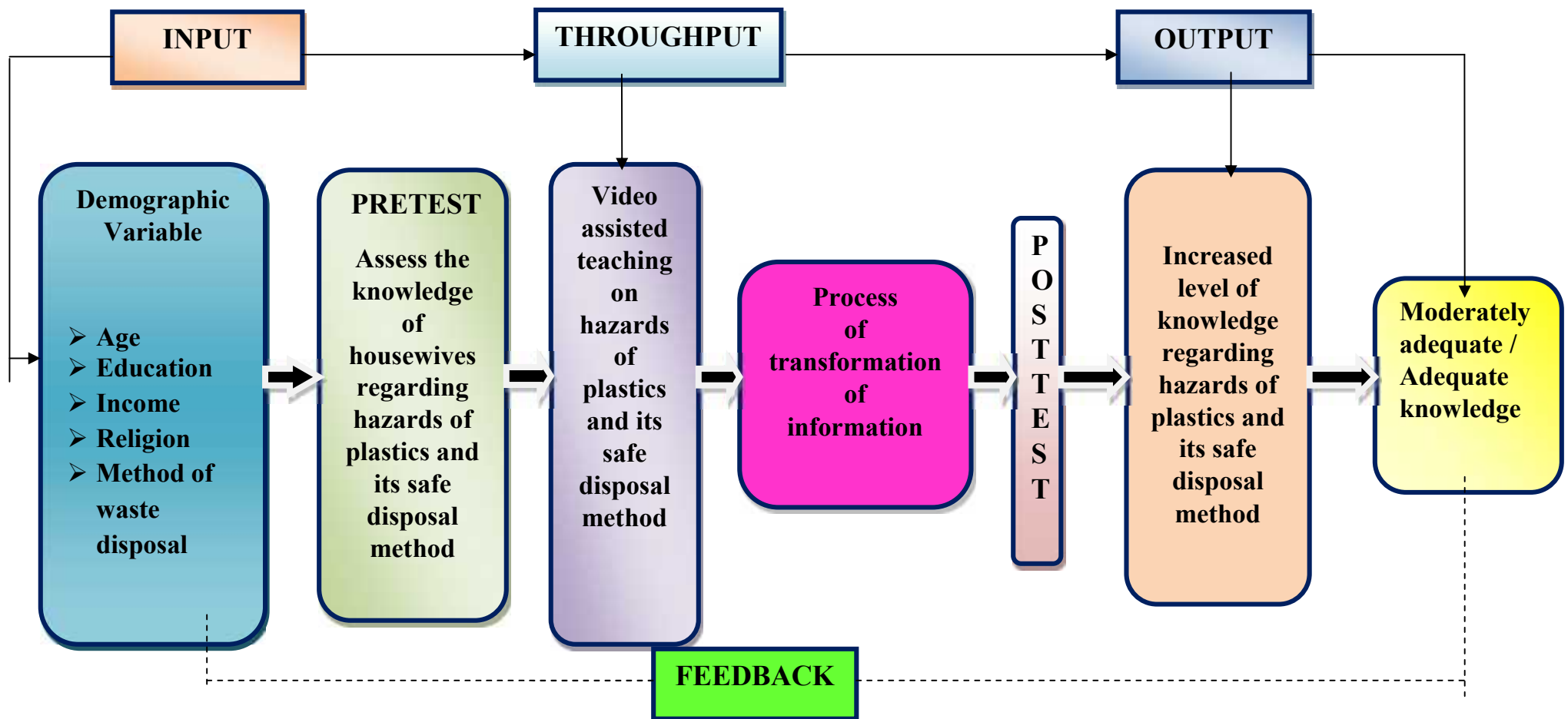


Fig 1: Conceptual framework based on J.W.Kenny's Open System Model

CHAPTER- III

METHODOLOGY

The research methodology is a way to solve the problems systematically. It may be understood as a science of studying how research is done scientifically. It explains why a particular method or technique is used in the study.

-Densie F.Polit,2004.

This chapter deals with the research design, the variable of the study, the setting, the population, sample, sample size, sampling technique, selection criteria development and description of tool, content validity, pilot study, reliability, data collection procedure and plan for data analysis.

3.1.Research Approach

The research approach tells the researcher from where the data is to be collected, what is to be collected, how to collect and how to analyze them. It also suggests a possible conclusion and helps the researcher in answering specific research questions in an accurate and efficient way.

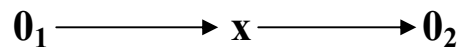
The research approach adopted for this study is a quantitative approach. This study aims at assessing the effectiveness of video assisted teaching on the hazards of plastics among housewives residing at choolai.

3.2.Research Design

The term research design is the an overall plan for how to handle research process and it is the true print of the study - (**Talbot,1995**).

The research design helps in the selection of the subjects, identification of variables, their manipulation and control, observation to be made and the type of statistical analysis to interpret the data. The selection of the design was based on the purpose of the study.

The research design selected for the present study was pre experimental one group pretest post test design.



O_1 = Pre test to assess knowledge about the hazards of plastics and its safe disposal among housewives residing at choolai.

X = Administration of Video Assisted Teaching on the hazards of plastics and its safe disposal among housewives.

O_2 = Post test to evaluate the level of knowledge about the hazards of plastics and its safe disposal among housewives.

3.3.Variables

Independent variable - Video assisted teaching regarding hazards of plastics and its safe disposal among housewives.

Dependent variable - Knowledge of housewives residing at choolai.

3.4. Setting of the study

The setting is the physical location and condition in which data collection takes place. - (Polit and Hungler,1999).

This study was conducted in urban area (Choolai) which belongs to the North Zone of Chennai Corporation and it is very near to urban health post. It has got four wards covering a total population of 56,744. It is approximately 4kms away from Madras Medical college, Chennai-3.

3.5. Study population

Population is the entire aggregation of subjects that meet a designed set of criteria. The target population of the study will be the housewives residing in choolai.

3.6. Sample

Sample refers to subjects of a population selected to participate in a research study. In this present study the selected sample were housewives who residing at choolai.

3.7.Sample Size

In this present study the sample size was 100 housewives residing in choolai.

3.8.Sampling Technique

Non probability convenience Sampling technique was used for this study.

3.9.Criteria for selection of the sample

Inclusion criteria:

1. The housewives who are residing in choolai.
2. The housewives who are willing to participate.
3. The housewives who are available at the time of data collection.
4. The housewives who are able to understand Tamil and English.

Exclusion criteria:

1. The housewives who are not willing to participate.
2. The housewives who are not residing in choolai.
3. The housewives who cannot read and write.

3.10.DEVELOPMENT AND DESCRIPTION OF THE TOOL

Data collection tools are the procedures or instruments used by the researcher to observe the key variables in the research problem.

The following steps were adopted in the development of the tool:

1. Review of literature provided adequate content for tool preparation
2. Opinion of experts from Medicine and Nursing
3. Construction of tool
4. Content validity
5. Pretesting of tool
6. Reliability of tool and instrument was ascertained by test - retest reliability

Research tool and technique

Description of the tool:

It has two sections A and B

Section A – Demographic data which include age, education, religion,

Monthly family income and ways of waste disposal

Section B – Structured Questionnaire.

The tool consists of 22 questions related to hazards of plastics and its safe disposal method. Demographic variables were coded to assess the background of housewives and there by subject it for statistical analysis.

Section B: It consists of 22 structured questionnaires to assess the knowledge on hazards of plastics and its safe disposal method. Each correct answer was given a score of one (1) and wrong answer was scored as zero (0). The total scores were 22.

The scores were interpreted as follows:

Level of knowledge	Percentage
Inadequate	< 50%
Moderate	51 – 75%
Adequate	76-100%

3.11. ETHICAL CONSIDERATION

The study was proposed and submitted to the ethics committee, Madras Medical College and the experts on the committee approved the study. All respondents were carefully informed about the purpose of the study and their part during the study. Informed consent for the study was obtained from all participants. Confidentiality of the subject's information was maintained. Thus the investigator followed the ethical guidelines, which were issued by the research committee. Necessary permission to conduct the study was requested and obtained from the City Health Officer of Chennai Corporation, Departmental head of Community Health nursing, college of nursing, Madras Medical College. The study was done without any violation of human rights.

3.12. Testing of the tool

3.12.1. Content validity

Content validity of the tool was assessed by obtaining an opinion from experts in the field of community medicine and community health nursing. The experts were an Associate professor and Reader respectively. There was uniform agreement to the tool adopted for conducting the study. Hence, the investigator proceeds with the same tool.

3.12.2.Pilot Study

The pilot study is a trial run for the main study to test the reliability, practicability, appropriateness and flexibility of the tool for the study. A formal permission to conduct the study in the choolai community area, Chennai was obtained from City Health officer of Chennai corporation. A pilot study was done for a period of 6 days. Samples were selected from choolai area. The purpose of the study was informed to the samples. Confidentiality of the information was assured. The consent was obtained from the samples. Samples were selected using Non probability convenient Sampling technique. Analysis of the finding showed high consistency and feasibility of the study and after which the plan for the actual study was made.

3.12.3.Reliability of the tool

After pilot study reliability of the tool was assessed by using Test retest method. The knowledge score reliability correlation coefficient 'r' value was 0.83. This correlation coefficient is very high and it is good tool for assessing the effectiveness of video assisted teaching about hazards of plastics and its safe disposal among the housewives residing at selected urban area, choolai.

3.13. DEVELOPMENT OF PROTOCOL FOR VIDEO ASSISTED TEACHING

Video Assisted Teaching was developed by the researcher after intensive review and expert opinion. It consists of

- ❖ Definition of plastic
- ❖ Uses of plastic
- ❖ Common hazards of plastic use
- ❖ Hazards of plastic use on human beings
- ❖ Hazards of plastic use on coastal region
- ❖ Hazards of plastic use of environment
- ❖ Hazards of plastic use on animals
- ❖ Prevention of hazards of plastic use

The average time taken to teach was 30 minutes.

3.14.Data collection procedure

The plan of data collection for the proposed study is as follows:

- Permission has obtained from the Institutional Ethics Committee, Formal permission was obtained from the City Health Officer, Corporation of Chennai.
- Samples were drawn using Non probability, Convenient Sampling Technique, during the 1st visit, the researcher introduced herself and explained the purpose of the study and confirmed the willingness of the pre menopausal women to participate in the study by getting consent from them as per the inclusion criteria.
- Data collection procedure was done for a period of four weeks and the time taken for each subject was 10-15 minutes.Pre assessment was done using structured questionnaire, Subsequently Video Assisted Teaching was given on same day for 30 minutes.
- On the seventh day post assessment was conducted using same structured questionnaire.

Based on the criteria 8-10 subjects were selected each day.The subjects were assured of confidentiality of data collected.

3.15.Plan for Data Analysis was as follows: -

Collected data will be analyzed by using descriptive and inferential statistics.

1 Descriptive analysis:

- Frequency and percentage analysis will be used to describe demographic characteristics of housewives.
- Range, Mean and standard deviation will be used to assess the knowledge of housewives.

2 Inferential analysis:

- Paired t-test will be used to test to compare the pre-test and post- test knowledge.
- Chi-square analysis will be used to find out the association between the pre-test knowledge scores and demographic variables.

SCHEMATIC REPRESENTATION OF THE STUDY

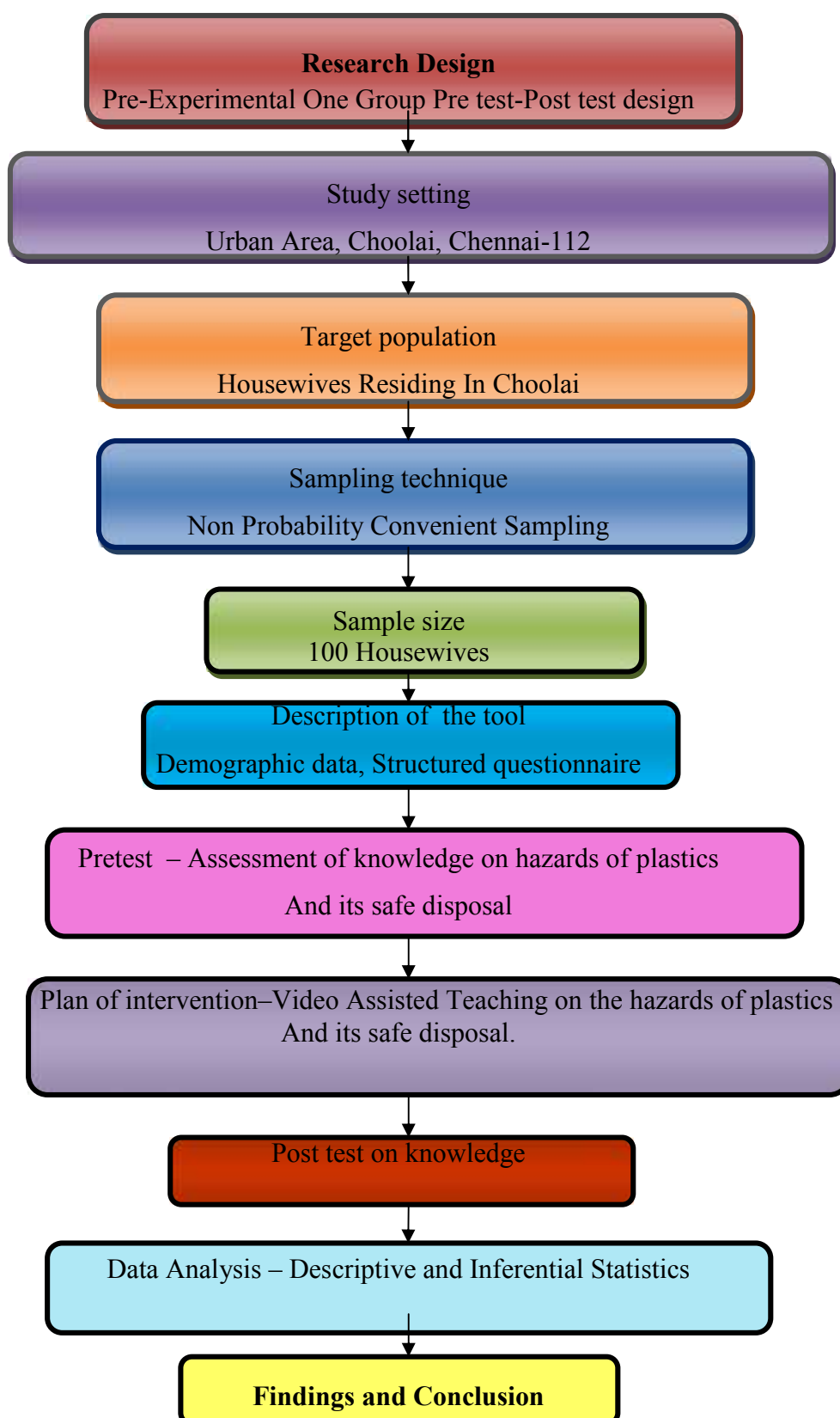


Figure - 2

CHAPTER –IV

DATA ANALYSIS AND INTERPRETATION

Analysis is the appraisal of the data and interpretation of the data consisting of a relation between the findings of the research problem and theoretical framework of the study. An important function of the process of interpretation is to link the findings of the study to the mainstream of scientific knowledge in the field.

-Suresh K Sharma.

This chapter deals with the analysis and interpretation of the data obtained from 100 housewives with reference their Knowledge regarding hazards of plastics and its safe disposal.

The analysis and interpretation of the study were based on the data Collected through structured multiple choice question to assess the knowledge regarding hazards of plastics and its safe disposal.

The collected data were tabulated and presented according to the objectives under the following headings.

Section – A - Description of housewives by their demographic variables.

Section – B - Pretest level of knowledge among housewives regarding hazards of plastics and its safe disposal .

Section – C - Post test level of knowledge among housewives regarding hazards of plastics and its safe disposal .

Section- D - Comparison of pre and post test level of knowledge.

Section – E - Effectiveness of Video Assisted Teaching.

Section – F - Association of post test knowledge with selected demographic variables.

Section – A - Description of housewives by their demographic variables .

TABLE 1: DEMOGRAPHIC PROFILE

Demographic variables		No. of housewives	%
Age	18 - 22 yrs	5	5.0%
	23 - 27 yrs	23	23.0%
	28 - 32 yrs	32	32.0%
	> 32 yrs	40	40.0%
Educational Status	1 – 6 th std	20	20.0%
	7 – 12 th std	45	45.0%
	Diploma	22	22.0%
	Degree	13	13.0%
Family Income Per Month	Rs.1590-4726	10	10.0%
	Rs.4727-7877	43	43.0%
	Rs.7878-11,816	35	35.0%
	> Rs.11,816	12	12.0%
Religion	Hindu	82	82.0%
	Muslim	5	5.0%
	Christian	10	10.0%
	Others	3	3.0%
Method of waste disposal	Open land	47	47.0%
	Dustbin	37	37.0%
	Burning	5	5.0%
	Other methods	11	11.0%

The above table reveals that study group of 40% of housewives were in the age group of >32 yrs, 32% of housewives were in the age group of 28-32 yrs, 23% of housewives were in the age group of 23-27 yrs, and 5% were in 18 – 22 yrs of age.

Educational status of the study group reveals that 45% of housewives had education upto 7 – 12th std , 22% had education upto diploma , 20% of housewives had education upto 1 – 6th std , 13% had education upto degree.

The data regarding monthly income of study group reveal that 43% of housewives were in Rs 4272-7877 income, 35% were at Rs 7878-11,816 income, 12% were in > Rs 11,817, and 10% of housewives were at Rs 1590-4726.

Regarding religion most of the study group (ie). 82% of them were Hindus , 10% were Christian, 5% of them were Muslims and 3% of them were other type of religion.

The data regarding method of waste disposal of study group illustrate that 47% were in disposing in open land, 37% were disposed in the dustbin, 11% were using another method, 5% were burning the waste.

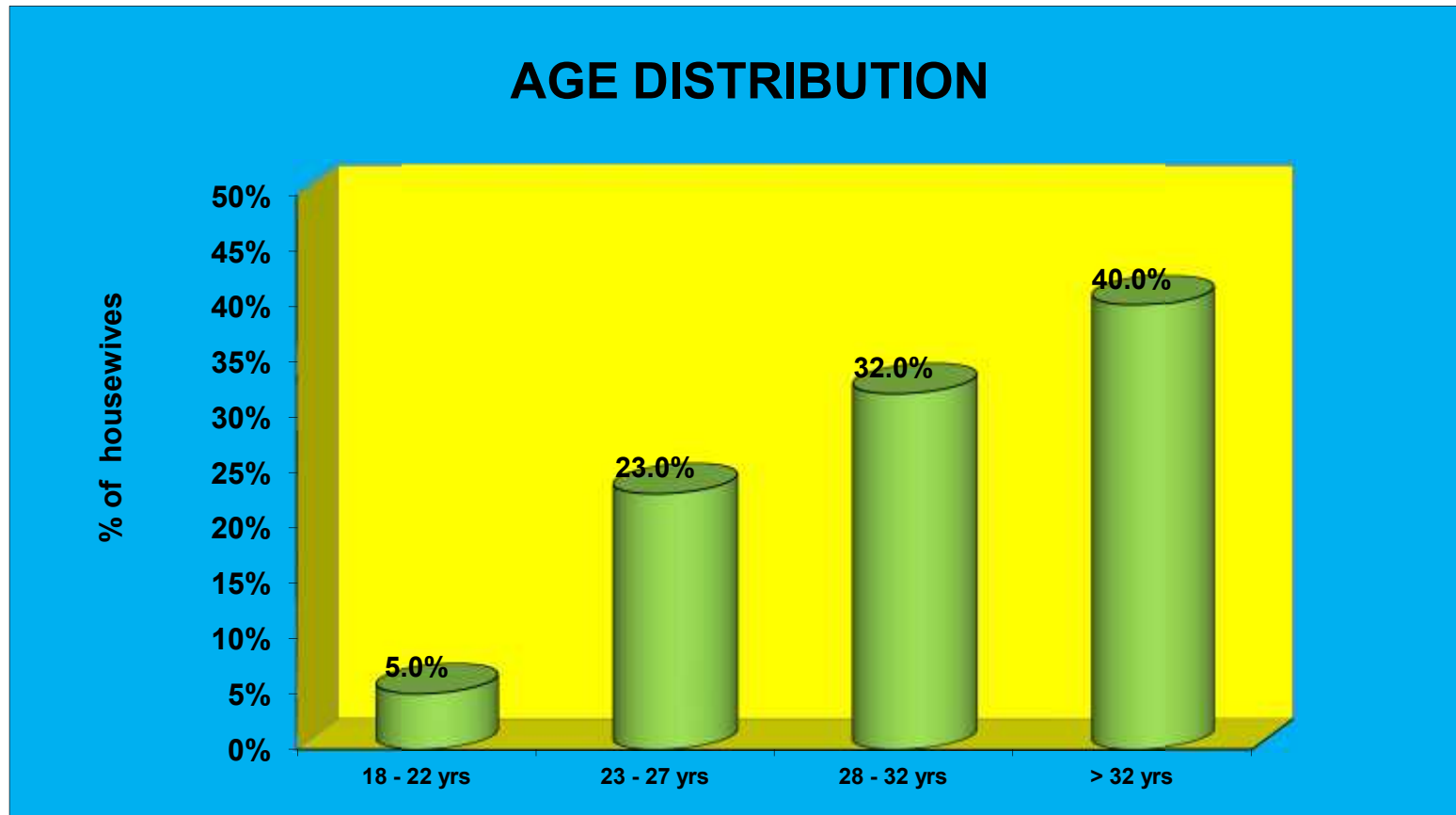


Fig – 3: Age distribution of housewives

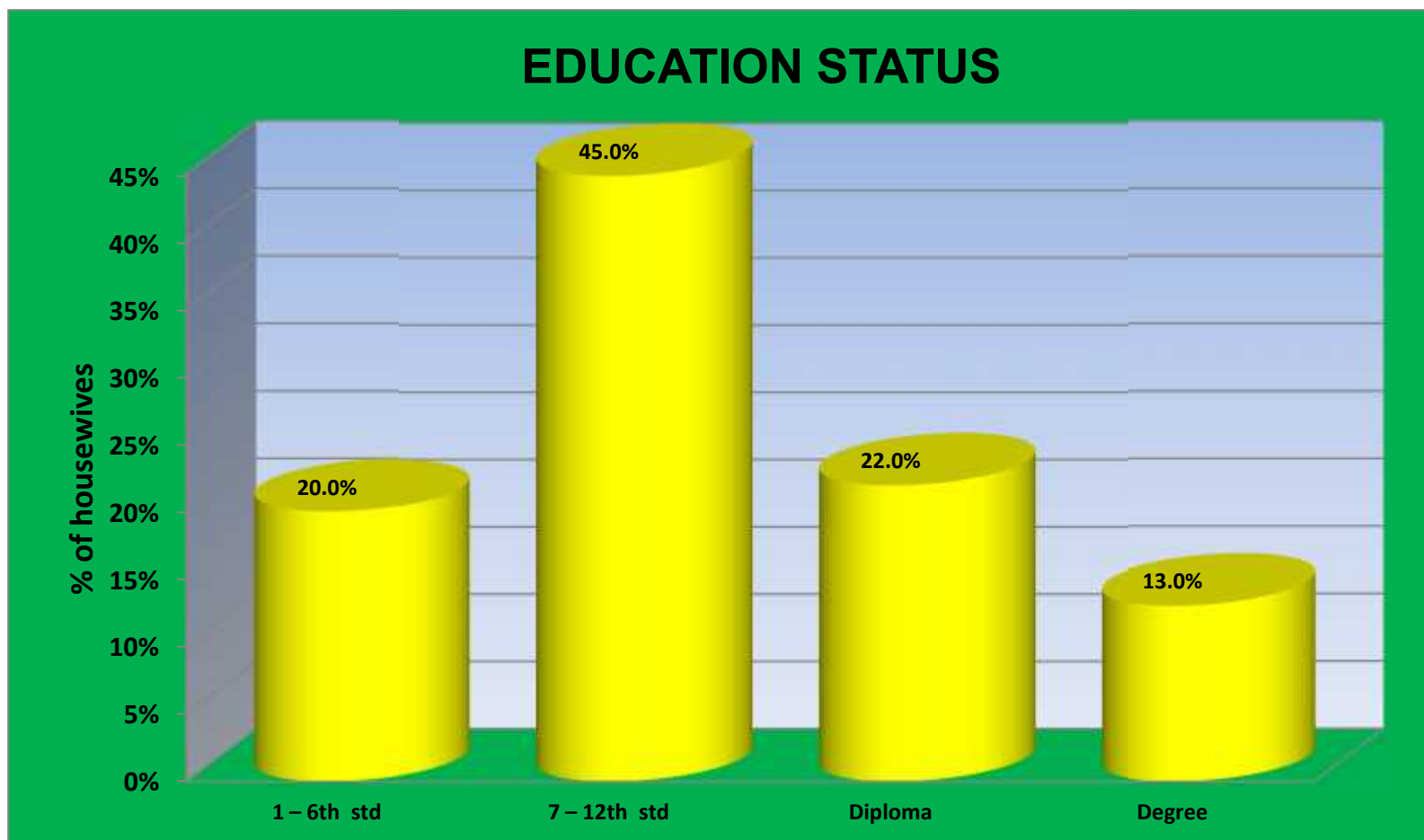


Fig – 4: Education status of housewives

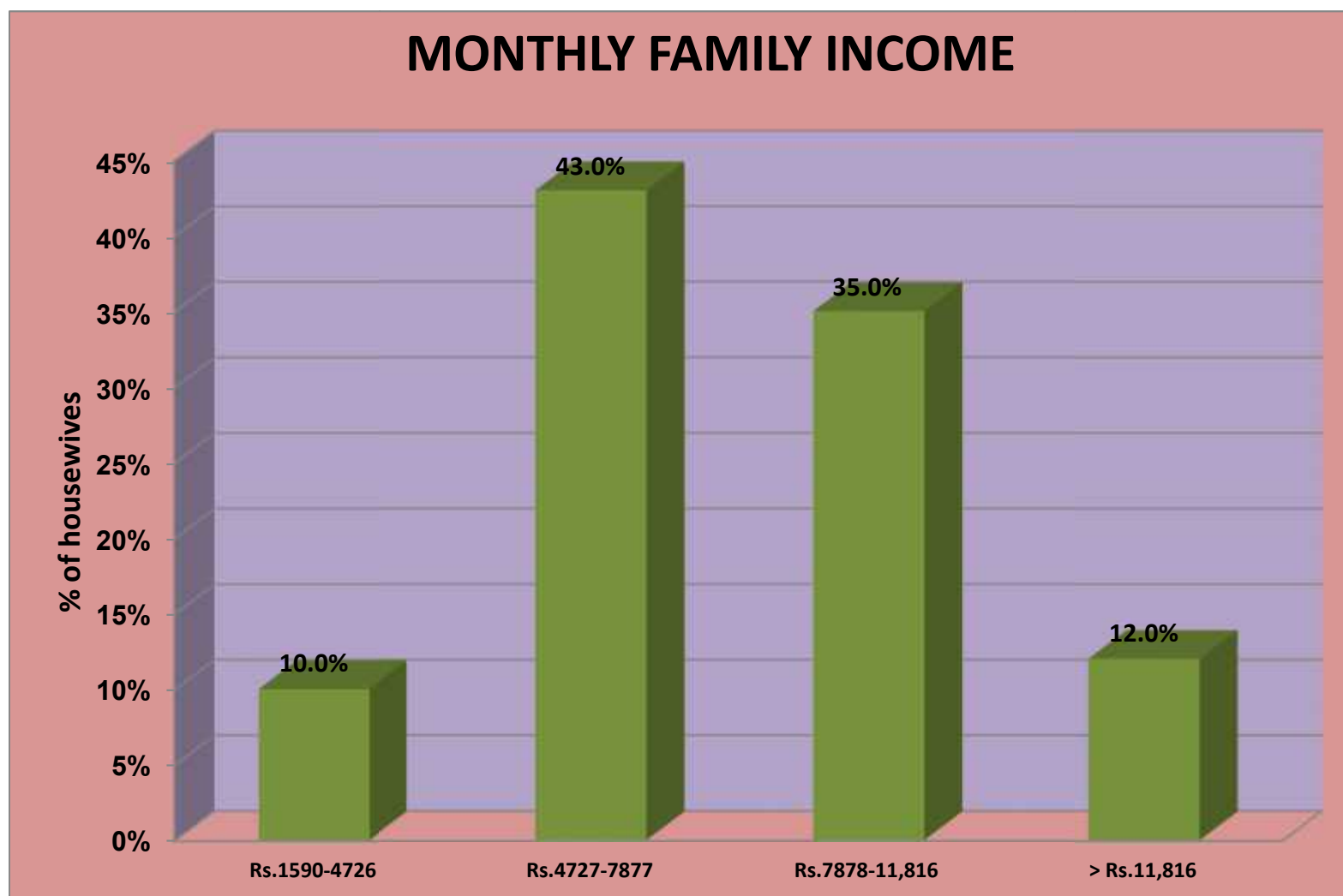


Fig – 5 : Monthly family income of housewives

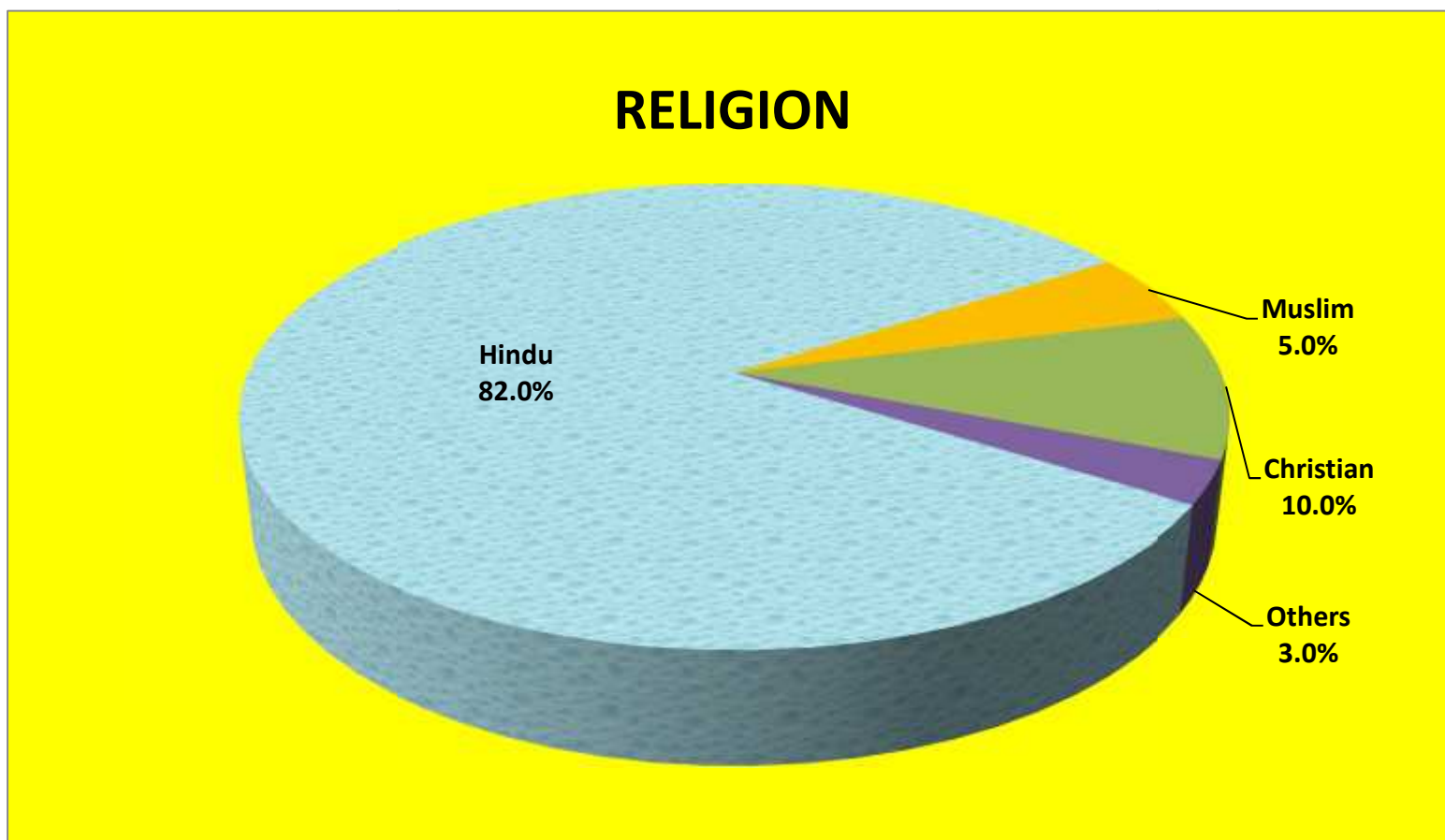


Fig – 6 : Religion distribution of the housewives

METHOD OF WASTE DISPOSAL

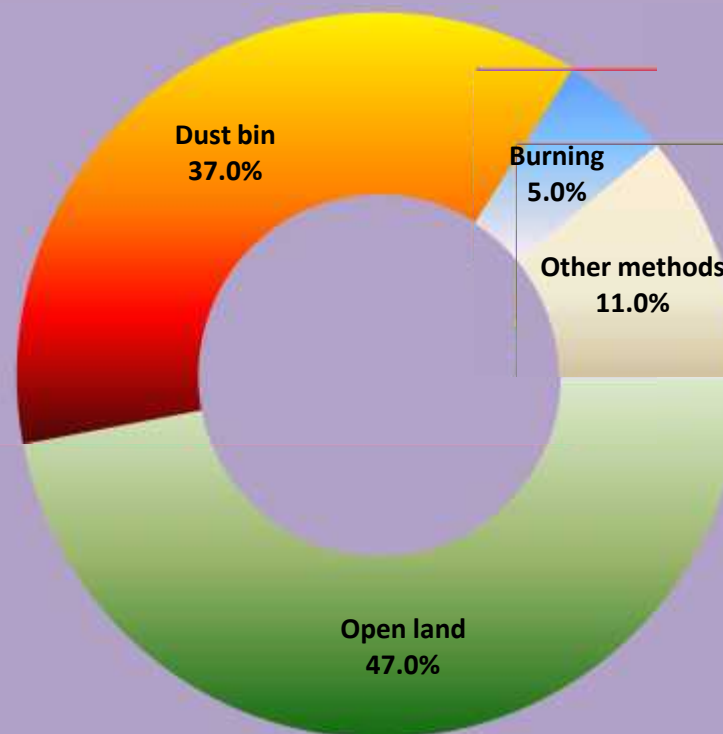


Fig – 7 : Method of waste disposal among housewives

Section – B - Pretest level of knowledge among housewives regarding hazards of plastics and its safe disposal .

TABLE 2: EACH ASPECTWISE PRETEST PERCENTAGE OF KNOWLEDGE ON HAZARDS OF PLASTIC AND ITS SAFE DISPOSAL AMONG HOUSEWIVES

KNOWLEDGE ON	Hazards of plastic use	No. of questions	Min – Max score	Pretest score		
				Mean score	SD	%
GENERAL ASPECTS ON HAZARDS OF PLASTIC USE	General aspects	6	0 -6	3.49	1.23	58.2%
OTHER HAZARDS OF PLASTIC USE	Human beings	4	0 -4	1.95	1.13	48.8%
	Coastal region	3	0 -3	1.04	.68	34.7%
	Environment	4	0 -4	1.60	.85	40.0%
	Animals	2	0 -2	1.10	.76	55.0%
	Prevention	3	0-3	1.28	.84	42.7%
	Total	22	0 -22	10.46	3.85	47.5%

Table 2 shows each aspectwise pre test knowledge about the hazards of plastics and its safe disposal among housewives.

In pretest, they are having more knowledge in **General aspects** (58.2%) and minimum knowledge in **the Coastal region aspect** (34.7%).

Overall, they are having 47.5% of knowledge score.

TABLE 3: PRETEST LEVEL OF KNOWLEDGE

Level of knowledge	Pretest	
	No. of housewives	%
Inadequate	62	62.0%
Moderate	31	31.0%
Adequate	7	7.0%
Total	100	100%

Table 3 shows the pre test knowledge about the hazards of plastics and its safe disposal among housewives.

In pretest 62.0% of the housewives are having inadequate knowledge, 31.0% of them are having moderate knowledge and 7% of them are having adequate knowledge.

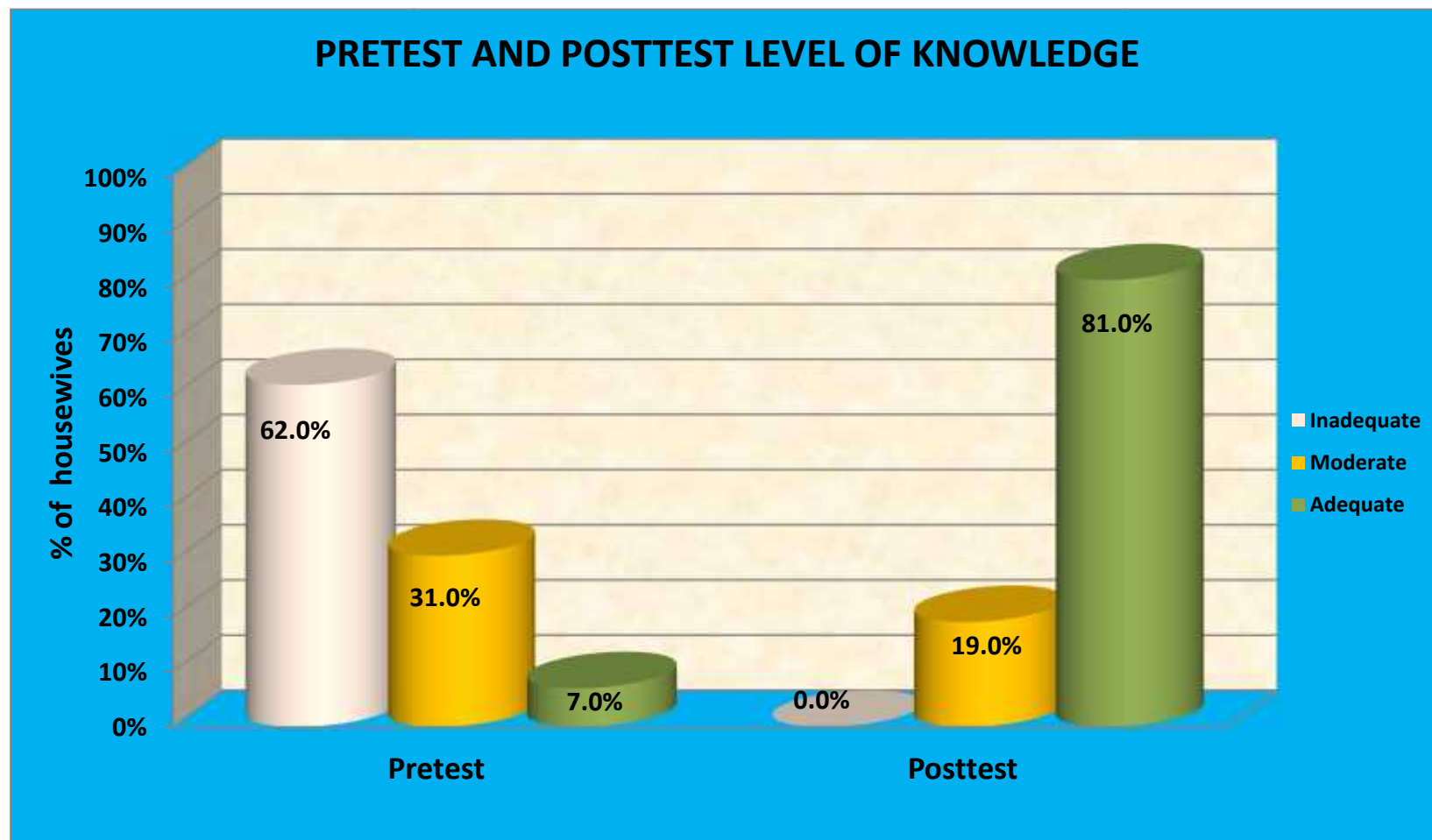


Fig – 8: Pretest and Post test Level of knowledge among Housewives

TABLE 4: SCORE INTERPRETATION

LEVEL OF KNOWLEDGE	PERCENTAGE
Inadequate knowledge	< 50%
Moderate knowledge	51 – 75%
Adequate knowledge	76-100%

This table shows the score interpretation used to assess the level of knowledge among the housewives who were participating in the study.

Section – C - Post test level of knowledge among housewives regarding hazards of plastics and its safe disposal .

TABLE 5: EACH ASPECTWISE POSTTEST PERCENTAGE OF KNOWLEDGE ON HAZARDS OF PLASTIC AND ITS SAFE DISPOSAL AMONG HOUSEWIVES

KNOWLEDGE ON	Hazards of plastic use	No. of questions	Min – Max score	Posttest score		
				Mean score	SD	%
GENERAL ASPECTS ON HAZARDS OF PLASTIC USE	General aspects	6	0 -6	5.53	.73	92.2%
OTHER HAZARDS OF PLASTIC USE	Human beings	4	0 -4	2.98	.84	74.5%
	Coastal region	3	0 -3	2.22	.73	74.0%
	Environment	4	0 -4	3.13	.79	78.3%
	Animals	2	0 -2	1.78	.42	89.0%
	Prevention	3	0-3	2.34	.68	78.0%
	Total	22	0 -22	17.98	1.74	81.7%

Table 5 shows each aspectwise post test knowledge about the hazards of plastics and its safe disposal among housewives.

In posttest, they are having more knowledge in **General aspects** (92.2%) and minimum knowledge in **the Coastal region aspect** (74.0%).

Overall, they are having 81.7% of knowledge score.

TABLE 6: POSTTEST LEVEL OF KNOWLEDGE

Level of knowledge	Posttest	
	No. of housewives	%
Inadequate	0	0.0%
Moderate	19	19.0%
Adequate	81	81.0%
Total	100	100%

Table 6 shows the post test knowledge about the hazards of plastics and its safe disposal among housewives.

In posttest none of the housewives are having inadequate knowledge, 19.0% of them are having moderate knowledge and 81% of them are having adequate knowledge.

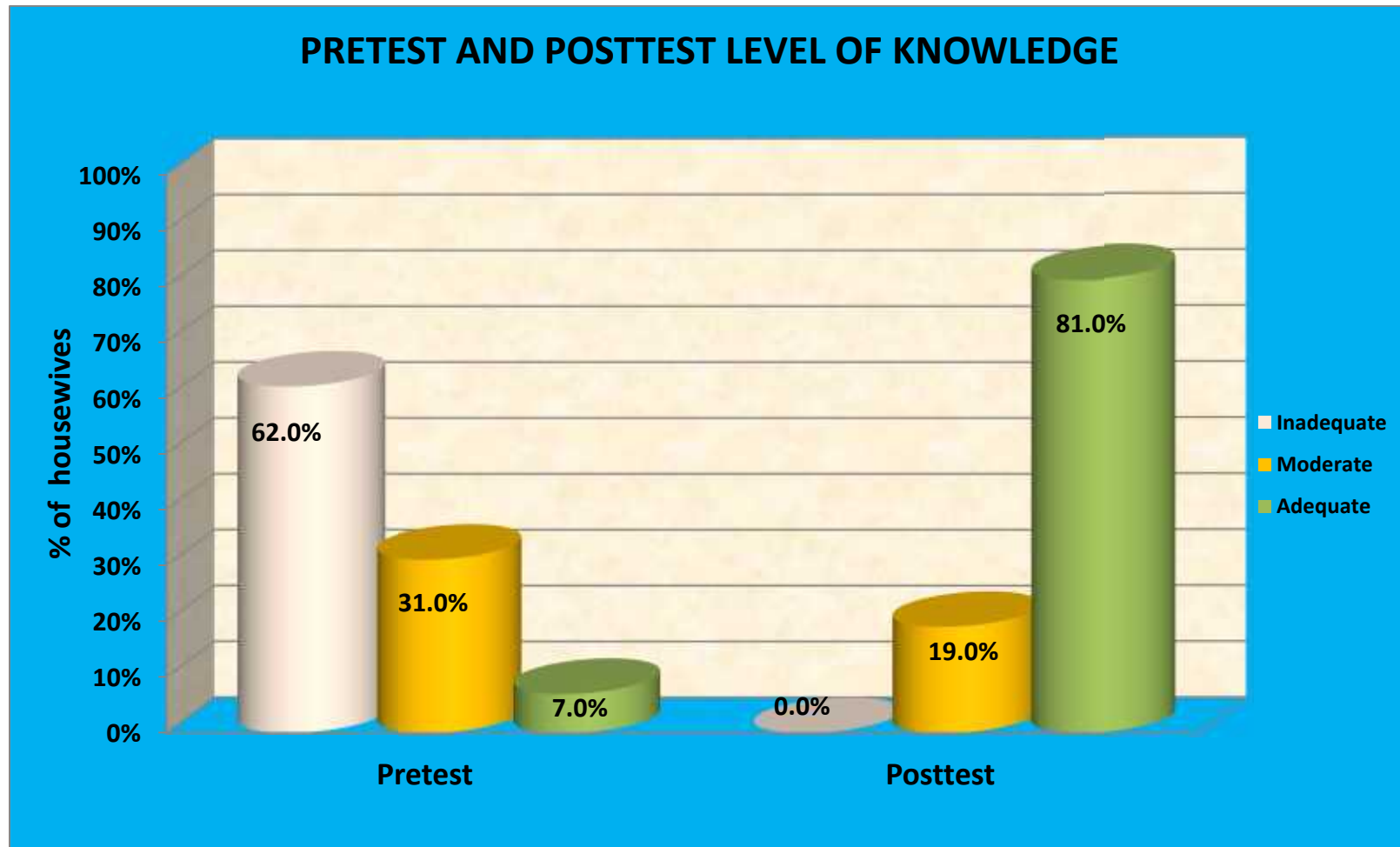


Fig – 8: Pretest and post test level of knowledge among housewives

Section- D : Comparison of pre and posttest level of knowledge.

TABLE 7: COMPARISON OF PRETEST AND POSTTEST MEAN KNOWLEDGE SCORE

KNOWLEDGE ON	Knowledge score				Student's
	Pretest		Posttest		Paired
	Mean	SD	Mean	SD	t-test
General aspects	3.49	1.23	5.53	.73	t=13.56, P=0.001*** Significant
Human beings	1.95	1.13	2.98	.84	t=9.56, P=0.001*** Significant
Coastal region	1.04	.68	2.22	.73	t=14.15, P=0.001*** Significant
Environment	1.60	.85	3.13	.79	t=13.40, P=0.001*** Significant
Animals	1.10	.76	1.78	.42	t=8.34, P=0.001*** Significant
Prevention	1.28	.84	2.34	.68	t=9.98, P=0.001*** Significant

* significant at $P \leq 0.05$ ** highly significant at $P \leq 0.01$ *** very high significant at $P \leq 0.001$.

Table no.7 compares pretest and posttest mean knowledge score .

Considering **General aspects** ,in pretest, housewives are having 3.49 score where as in posttest they are having 5.53 score , so the difference is 2.04. This difference between pretest and posttest is large and it is statistically significant.

Considering **Human beings** aspects ,in pretest , housewives are having 1.95 score where as in posttest they are having 2.98 score , so the difference is 1.03. This difference between pretest and posttest is large and it is statistically significant.

Considering **costal region** aspects ,in pretest , housewives are having 1.04 score where as in posttest they are having 2.22 score , so the difference is 1.18. This difference between pretest and posttest is large and it is statistically significant.

Considering **Environmental** aspects, in the pretest, housewives are having 1.60 score where as in posttest, they are having 3.13 scores, so the difference is 1.53. This difference between pretest and posttest is large and it is statistically significant.

Considering **Animals** aspects ,in pretest , housewives are having 1.10 score where as in posttest they are having 1.78 score , so the difference is 0.68. This difference between pretest and posttest is large and it is statistically significant.

Considering **Prevention** aspects ,in pretest , housewives are having 1.28 score where as in posttest they are having 2.34 score , so the difference is 1.06. This difference between pretest and posttest is large and it is statistically significant.

Statistical significance was calculated by using student's paired 't' test.

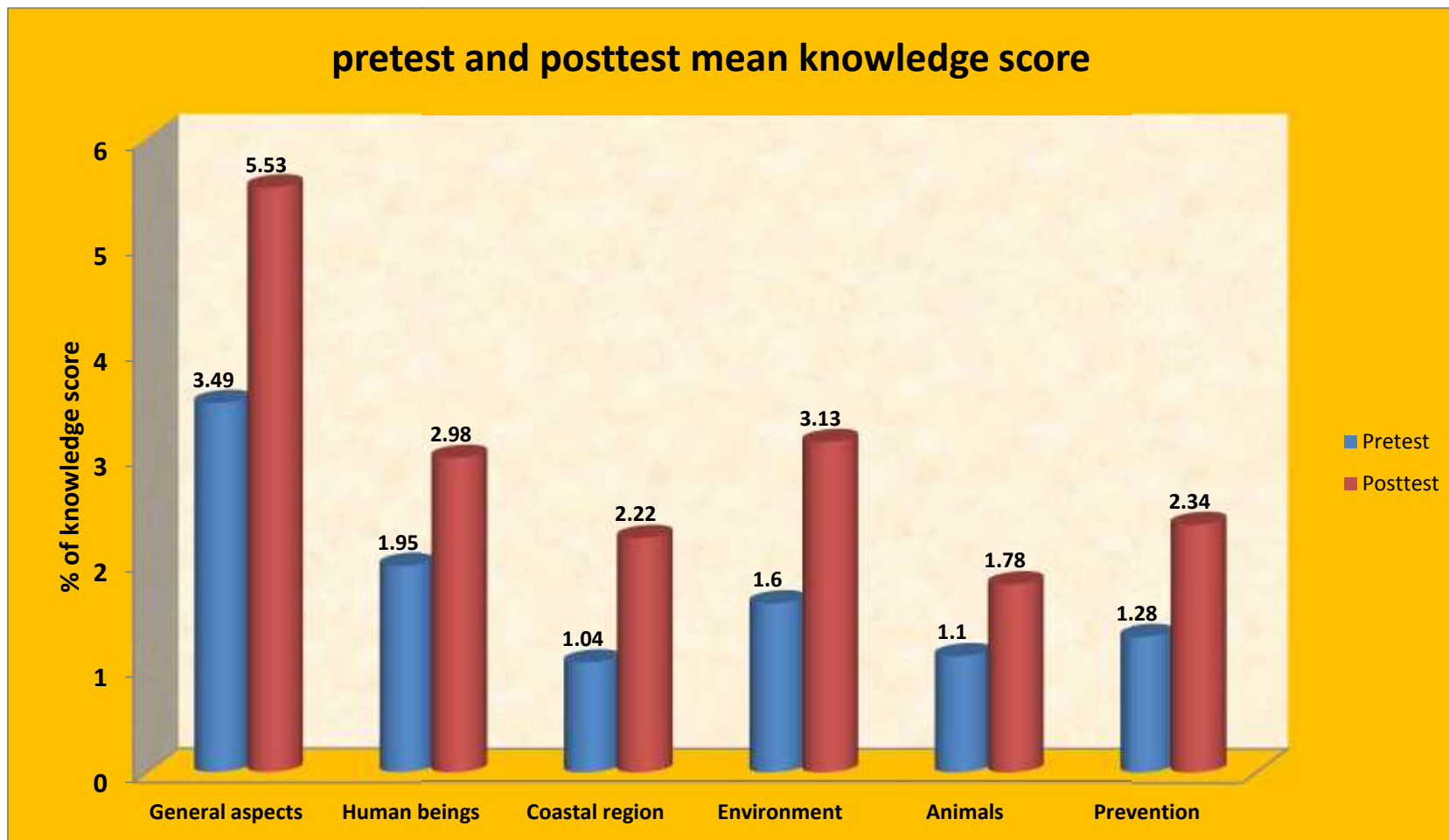


Fig – 9: Pretest and post test mean knowledge score among housewives.

TABLE 8: COMPARISON OF OVERALL KNOWLEDGE SCORE

	No. of housewives	Mean \pm SD	Student's paired t-test
Pretest	100	10.46 \pm 3.84	t=24.03 P=0.001***
posttest	100	17.98 \pm 1.74	Significant

* significant at $P \leq 0.05$ ** highly significant at $P \leq 0.01$ *** very high significant at $P \leq 0.001$

Table no 8 shows the comparison of overall knowledge score between pretest and posttest.

On an average, in pretest, housewives are having 10.46 score and in posttest, housewives are having 17.98 score. The difference is 7.52 score. The difference between pretest and the posttest knowledge score is large and it is statistically significant. Differences between pretest and posttest score was analyzed using paired t-test.

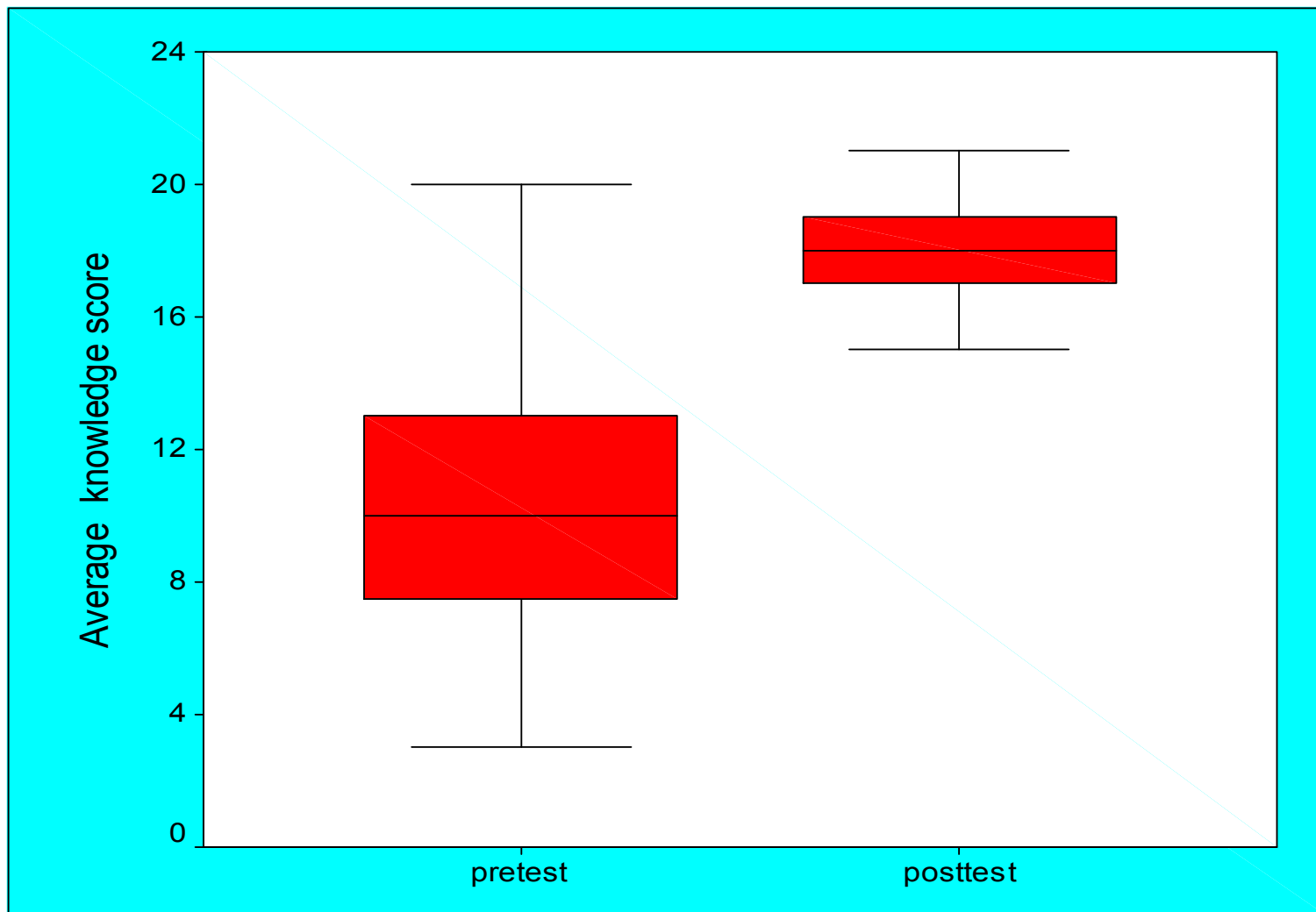


Fig 10: Box-Plot Compares the pre-test and post-test knowledge score regarding hazards of plastic use and its safe disposal among housewives

TABLE 9: COMPARISON OF PRETEST AND POSTTEST LEVEL OF KNOWLEDGE

Level of knowledge	Pretest		Posttest		Chi square test
	n	%	n	%	
Inadequate	62	62.0%	0	0.0%	$\chi^2=127.11$ P=0.001*** Significant
Moderate	31	31.0%	19	19.0%	
Adequate	7	7.0%	81	81.0%	
Total	100	100%	100	100%	

* significant at $P \leq 0.05$ ** highly significant at $P \leq 0.01$ *** very high significant at $P \leq 0.001$

Table no.9 shows the pretest and posttest knowledge among housewives.

Before video assisted teaching, In pretest 62.0% of the housewives are having inadequate knowledge, 31.0% of them are having moderate knowledge and 7% of them are having adequate knowledge.

After video assisted teaching, In posttest none of the housewives are having inadequate knowledge, 19.0% of them are having moderate knowledge and 81% of them are having adequate knowledge

Chi square test was used to test statistical significance.

TABLE 10: COMPARISON OF OVERALL KNOWLEDGE GAIN SCORE

	<i>Maximum score</i>	<i>Mean knowledge score</i>	Mean Difference in knowledge with 95% Confidence interval	Percentage of knowledge gain with 95% Confidence interval
Pretest	22	10.46	7.52(6.89 – 8.14)	34.2%(31.3% – 37.0%)
Posttest	22	17.98		

Table no 10 shows the comparison of overall knowledge score between pretest and posttest.

On an average, After VAT, housewives were gained 34.2% of the knowledge than pretest.

Differences between pretest and posttest score was analyzed using proportion with 95% CI and mean difference with 95% CI.

Section – E - Effectiveness of Video Assisted Teaching.

TABLE 11: EFFECTIVENESS OF VIDEO ASSISTED TEACHING

Knowledge on	Pretest Knowledge	Posttest Knowledge	% of knowledge gain
General aspects	58.2%	92.2%	34.0%
Human beings	48.8%	74.5%	25.7%
Coastal region	34.7%	74.0%	39.3%
Environment	40.0%	78.3%	38.3%
Animals	55.0%	89.0%	34.0%
Prevention	42.7%	78.0%	35.3%
OVERALL	47.5%	81.7%	34.2%

Table11 shows each domain wise knowledge gain.

In pretest housewives are having 47.5% of knowledge score on the hazards of plastics and its safe disposal, In posttest housewives are having 81.7% of knowledge score on the hazards of plastics and its safe disposal.

Overall, they gained 34.2% of knowledge on hazards of plastics and its safe disposal after having video assisted teaching.

This is the net benefit of video assisted teaching.

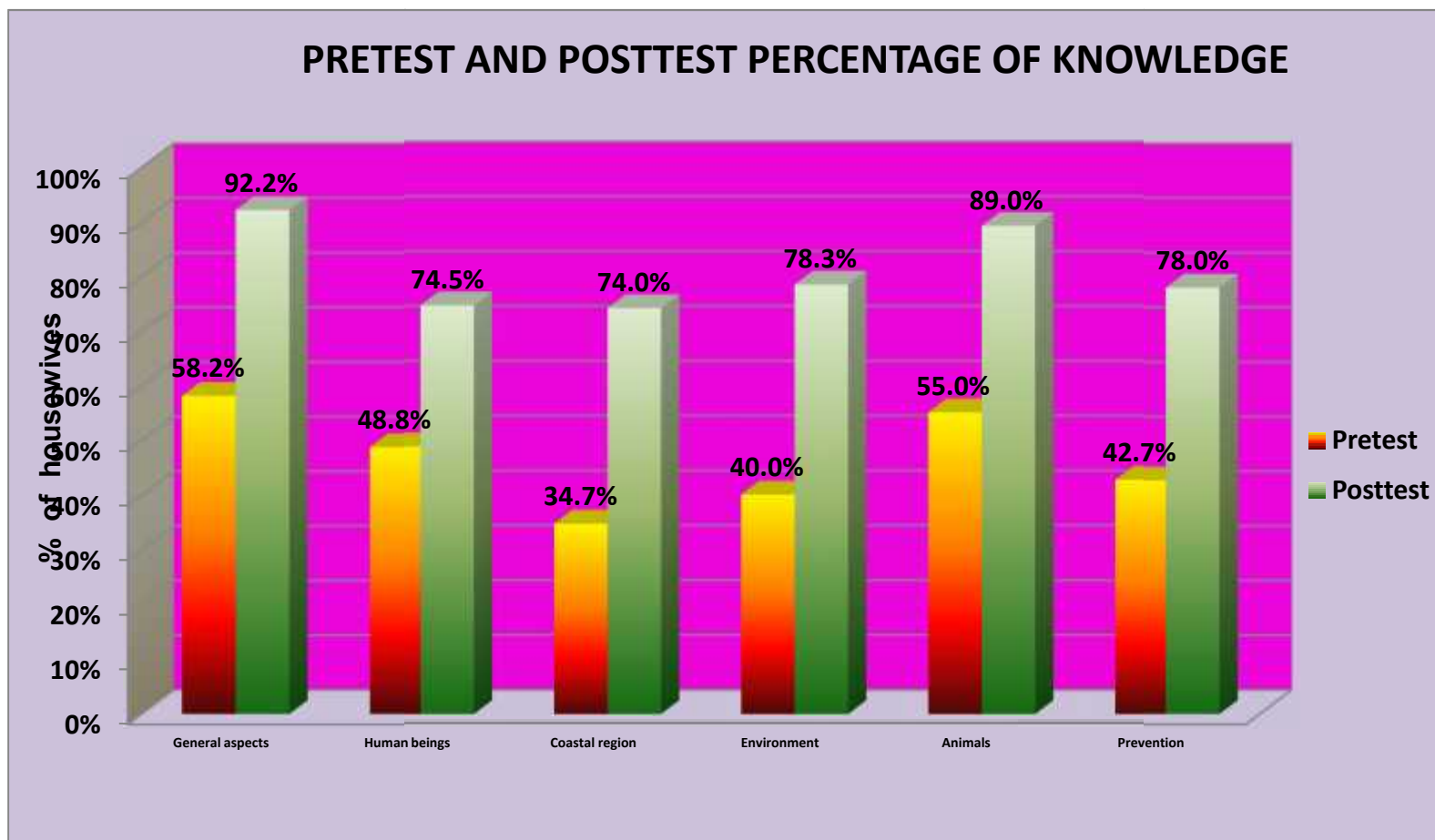


Fig – 11: Pretest and post test percentage of knowledge among housewives

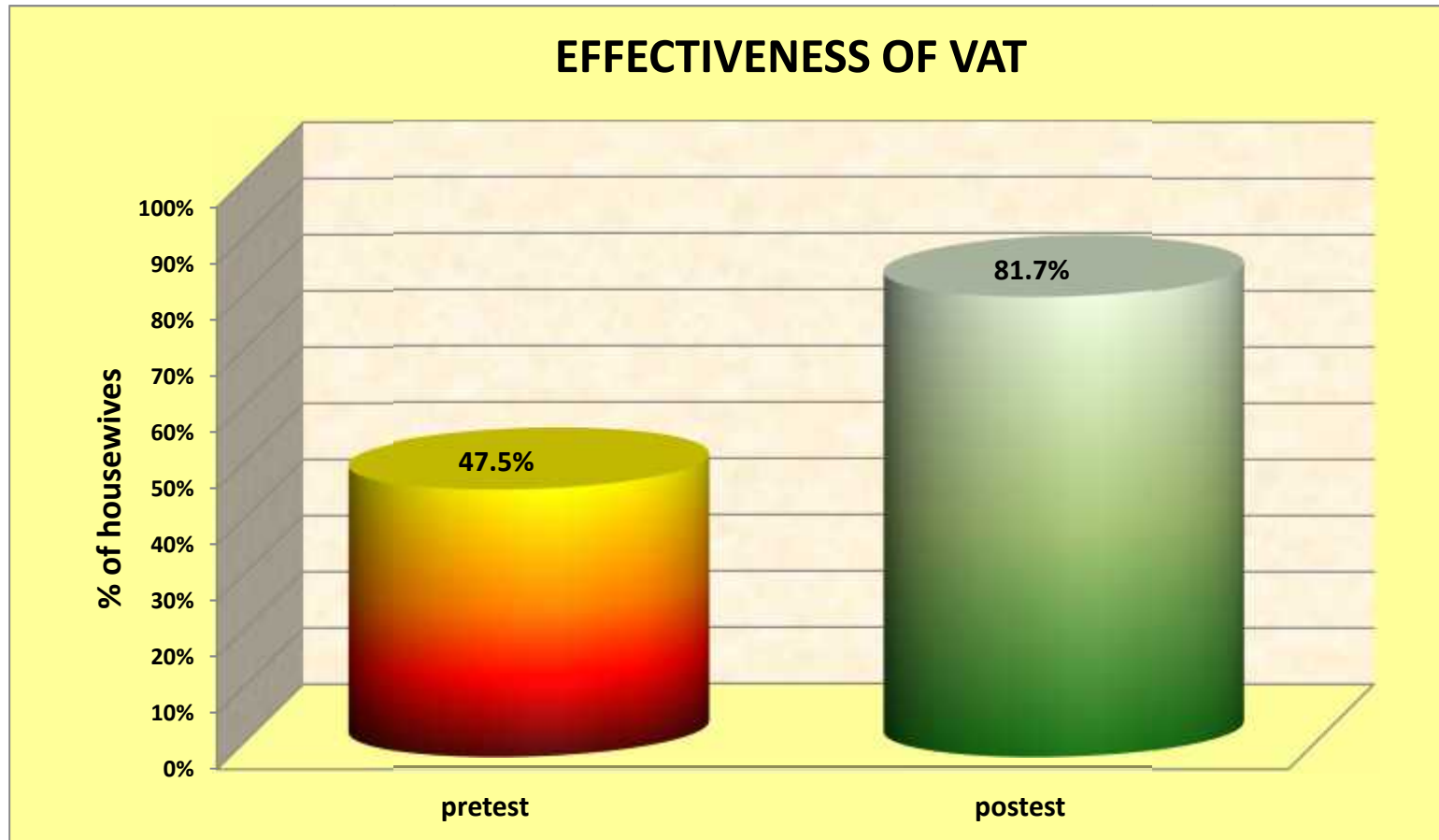


Fig – 12: Effectiveness of Video Assisted Teaching

Section – F : Association of post test knowledge with selected demographic variables.

TABLE 12: ASSOCIATION BETWEEN LEVEL OF KNOWLEDGE GAIN SCORE AND HOUSEWIVES DEMOGRAPHIC VARIABLES

Demographic variables		Level of knowledge gain				Total	Chi square test
		Below average (<7.5)		Above average (<7.5)			
		n	%	n	%		
Age	18 - 22 yrs	4	80.0%	1	20.0%	5	$\chi^2=9.33$ $p=0.02^*$
	23 - 27 yrs	15	65.2%	8	34.8%	23	
	28 - 32 yrs	18	56.3%	14	43.7%	32	
	> 32 yrs	13	32.5%	27	67.5%	40	
Educational Status	1 - 6 th std	14	70.0%	6	30.0%	20	$\chi^2=10.71$ $p=0.01^{**}$
	7 - 12th std	25	55.5%	20	44.5%	45	
	Diploma	9	40.9%	13	59.1%	22	
	Degree	2	15.4%	11	84.6%	13	
Family Income Per Month	Rs.1590-4726	8	80.0%	2	20.0%	10	$\chi^2=9.77$ $p=0.02^*$
	Rs.4727-7877	24	55.8%	19	44.2%	43	
	Rs.7878-11,816	16	45.7%	19	54.3%	35	
	> Rs.11,816	2	16.7%	10	84.3%	12	
Religion	Hindu	43	52.4%	34	47.6%	82	$\chi^2=2.93$ $p=0.40$
	Muslim	2	40.0%	3	60.0%	5	
	Christian	3	30.0%	7	70.0%	10	
	Others	2	66.7%	1	33.3%	3	
Method of waste disposal	Open land	21	44.7%	26	55.3%	47	$\chi^2=1.49$ $p=0.68$
	Dustbin	21	56.8%	16	43.2%	37	
	Burning	2	40.0%	3	60.0%	5	
	Other methods	6	54.5%	5	45.5%	11	

* significant at $P \leq 0.05$ ** highly significant at $P \leq 0.01$ *** very high

Significant at $P \leq 0.001$

Knowledge gain = posttest score- pretest score

Table no 12 shows the association between level of knowledge gain and their demographic variables. Elder, more educated and more income housewives are gaining more knowledge. Statistical significance was calculated using chi square test.

The post test knowledge score has a significant association with the age of the housewives ($\chi^2=9.33$ $p=0.02^*$), education of the housewives ($\chi^2=10.71$ $p=0.01^{**}$) and income of the housewives ($\chi^2=9.77$ $p=0.02^*$).

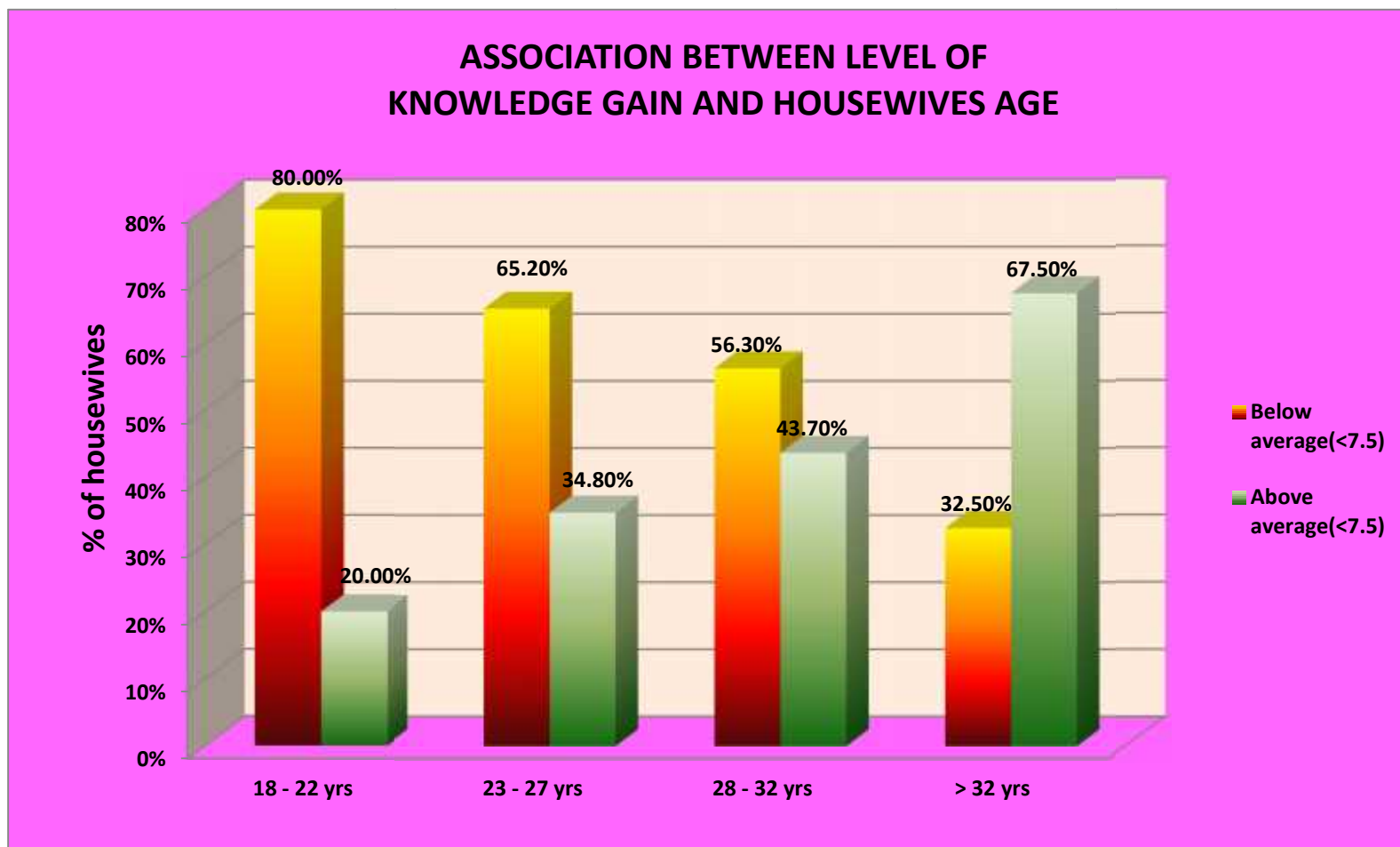


Fig - 13: Percentage distribution of association between level of knowledge gain and housewives age

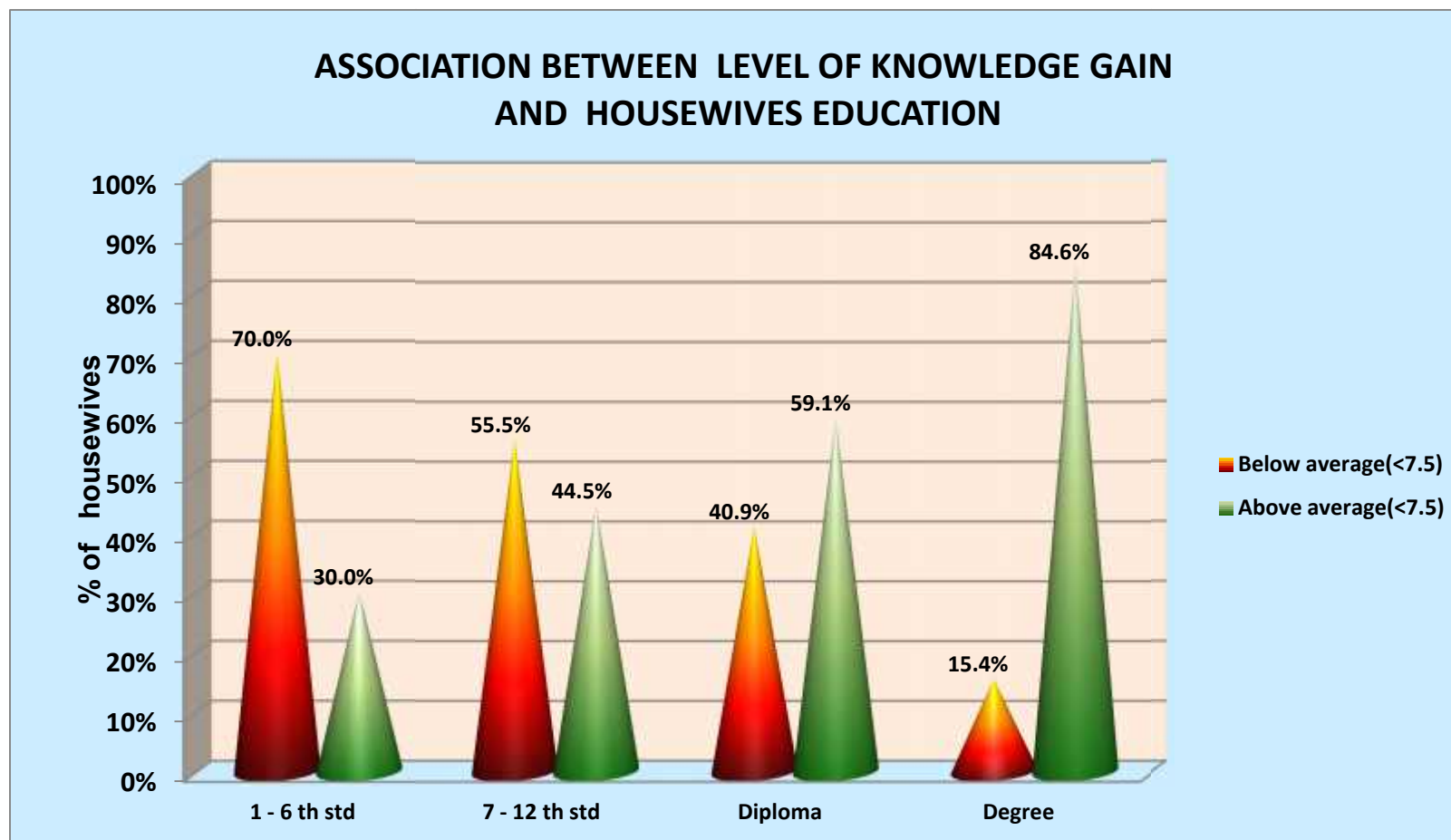


Fig - 14: Percentage distribution of association between level of knowledge gain and housewives education

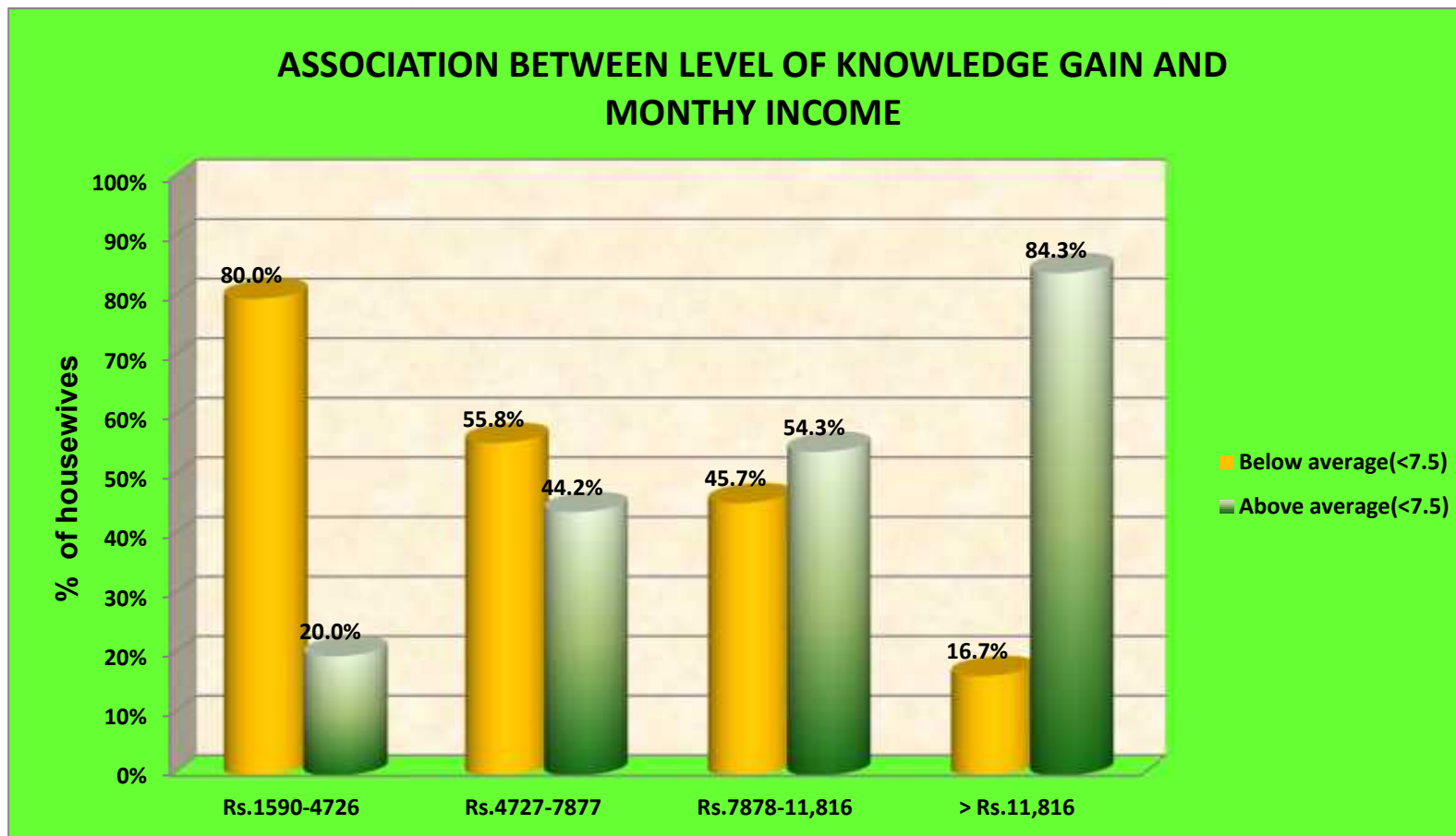


Fig - 15: Percentage distribution of association between level of knowledge gain and monthly income

CHAPTER - V

DISCUSSION

The discussion section is devoted to a thoughtful analysis of the findings, leading to a discussion of their clinical and theoretical utility.

-Denise F. Polit.

The present study was focused to assess the effectiveness of video assisted teaching about the hazards of plastics and its safe disposal among the housewives residing in selected urban area at Choolai in Chennai. The study sample consisted of 100 housewives selected through the convenient sampling technique.

The investigator found that the housewives were co-operative in the study. The investigator collected the demographic data from the housewives.

The study findings reveal that study group of 40% of housewives were in the age group of >32 yrs, 32% of housewives were in the age group of 28-32 yrs, 23% of housewives were in the age group of 23-27 yrs, and 5% were in 18 – 22 yrs of age.

Maximum number of housewives had education upto 7 – 12th std , 22% had education upto diploma , 20% of housewives had education upto 1 – 6th std , 13% had education upto degree. A majority of housewives were in Rs 4272-7877 income. With regard to the religion 82% of them were Hindus, 10% were Christian, 5% of them were Muslims and 3% of them were other type of religion. The data regarding method of waste disposal, most of the housewives were disposing the waste in open land only 37% were disposed in the dustbin.

The discussion about the study findings were presented in this chapter to arrive at a conclusion based on the objectives, the related literatures and hypothesis.

The first objective was to assess the pre test knowledge about the hazards of plastics and its safe disposal among housewives residing at choolai.

In assessing the pre-test level of knowledge 62.0% of the housewives are having inadequate knowledge, 31.0% of them are having moderate knowledge and 7% of them are having adequate knowledge.

In pretest, they are having more knowledge in **General aspects** (58.2%) and minimum knowledge in **the Coastal region** (34.7%).

Overall, they are having 47.5% of knowledge score.

The present study was supported by M.Sc nursing students(2008), in an analysis which was conducted among hundred people of ullal about the harmful effects of plastic and its management. Primary data was collected through questionnaire. The overall response pattern is very good.

The second objective was to assess the effectiveness of video assisted teaching about the hazards of plastics and its safe disposal among housewives residing at choolai.

In pretest housewives are having 47.5% of knowledge score on the hazards of plastics and its safe disposal, In posttest housewives are having 81.7% of knowledge score on the hazards of plastics and its safe disposal

Overall, they gained 34.2% of knowledge on hazards of plastics and its safe disposal after having video assisted teaching.

The present study was supported by Shiny Mary D. (2011) conducted a quasi experimental study on the effectiveness of the video assisted teaching in practice of post operative exercise among selected LSCS mothers. The result shows the excellent effectiveness of video assisted teaching program.

The third objective was to evaluate the post test knowledge level regarding hazards of plastics and its safe disposal among housewives residing at choolai.

In assessing the post test level of knowledge, none of the housewives are having inadequate knowledge, 19.0% of them are having moderate knowledge and 81% of them are having adequate knowledge.

The fourth objective was to compare the pretest and post test knowledge about the hazards of plastics and its safe disposal among selected housewives residing at choolai.

After comparing the pretest and the post test mean score of knowledge, there is a significant difference between the pre-test and the post test mean score and it is statistically significant. It was assessed by using a paired t - test.

The finding was supported by **Kaur M (2012)** that the overall mean score of pre-test was **14.91** with the S.D. **3.84**, whereas in post-test the overall mean score of **23.01** with S.D. of **3.72**. The t-test value was **-8.1*** which is statistically significant at $p < 0.005$ level of significance. The study finding implied that the education had a vital role in improving the knowledge of housewives regarding plastic management.

The fifth objective was to associate the findings with the selected demographic variables.

The study concluded that there is a good correlation between post test knowledge score and the score is statistically highly significant ($p = 0.001$) with the age of the housewives ($\chi^2 = 9.33$, $p = 0.02^*$), education of the housewives ($\chi^2 = 10.71$, $p = 0.01^{**}$) and income of the housewives ($\chi^2 = 9.77$, $p = 0.02^*$). It means adequate education which increases the knowledge among the samples.

The finding was supported by **Rann PM, Hill HJ., et.al. (2008)** conducted campaign on the use of reusable bags for shopping since 2005 and through a descriptive survey approach they assessed the existing habits of people related to plastic bags. The investigator thus said that people have adequate knowledge on effect of plastic, yet, they need stimulation and reinforcement to cultivate the habit of carrying their own bags for shopping.

CHAPTER VI

SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

This chapter deals with the summary of the study's implications, for nursing practice, education, nursing research, administration and recommendations for future research.

6.1. SUMMARY OF THE STUDY

The study was conducted to ascertain the effectiveness of video assisted teaching about the hazards of plastics and its safe disposal among the housewives residing in selected urban area at Choolai in Chennai. It was quantitative approach. The main objective of the study is to assess the level of knowledge with one group pre test and post test design. It was found suitable for this study. 100 housewives were included in the study based on the inclusion criteria. Self administered questionnaire was used to determine the level of knowledge among housewives.

The review of literature provided the base to construct the tools to select the methodology. J. W. Kenny's Open System Model provided a comprehensive framework for evaluation of the video assisted program. A video teaching plan on the hazards of plastics and its safe disposal was developed. All these tools were also translated in Tamil language.

The content validity of tools was obtained from experts. The reliability was tested by test-retest method and by conducting pilot study. A pilot study was conducted in Urban areas, Choolai, Chennai. The convenient sampling technique was used and the samples that fulfilled the inclusion criteria were finally included in the study and it was 10 samples. Descriptive and inferential statistics were used in the data analysis.

6.2. MAJOR FINDINGS OF THE STUDY

- 40% of housewives were in the age group of >32 years.
- Majority of housewives (45%) had education upto 7 – 12th std.

- Maximum housewives (43%) were at Rs 4272-7877 income.
- Regarding religion most of the study group (ie). 82% of them were Hindus.
- Majority of method of waste disposal of the study group illustrates that 47% were in disposing in open land.

The major objectives brought out the following,

- In assessing the pre-test level of knowledge 62.0% of the housewives are having inadequate knowledge, 31.0% of them are having moderate knowledge and 7% of them are having adequate knowledge.
- In pretest, they are having more knowledge in **General aspects** (58.2%) and minimum knowledge in **the Coastal region** (34.7%). Overall, they are having 47.5% of knowledge score.
- In posttest none of the housewives are having inadequate knowledge, 19.0% of them are having moderate knowledge and 81% of them are having adequate knowledge
- On an average, After VAT, housewives are gained 34.2% of the knowledge than pretest.
- There is a good correlation between post test knowledge and the score is statistically highly significant ($p=0.001$).
- There is significant improvement in the level of knowledge after the video assisted teaching programme.

6.3.IMPLICATIONS OF THE STUDY

The findings of the study have implication for the nursing profession. The implications drawn from the study were of vital concern for community nursing practice , nursing education, nursing research and nursing administration.

NURSING PRACTICE

- The study findings related that there is a relationship between the knowledge on hazards of plastics and its safe disposal among the housewives residing in choolai.
- The community health nurse can be resource personnel for the community area and they can also educate them at the grass root level in imparting

knowledge regarding hazards of plastics and its safe disposal among the housewives.

- The community health nurse has to educate the community people regarding hazards of plastics and its safe disposal both in urban and rural areas.
- Health education regarding the importance of environmental sanitation should be provided to the community people.
- Training and in-service education to the school teachers to utilize the knowledge in hazards of plastic use among the school children.
- Posters can be displayed on the importance of the correct technique of using and disposing plastics in the rural areas to increase the knowledge of the community.
- Not only nurses, but all the health care providers such as auxiliary nurses and midwives, village health guides, nurses working in community center should provide in-service education regarding hazards of plastics and its safe disposal.

NURSING EDUCATION

- To provide the knowledge, the nursing personnel need to be equipped with adequate knowledge and conduct mass health education program on hazards of plastic use and its safe disposal.
- The community health nursing curriculum needs to be strengthened and should include more content towards school based health services, which should enable the students to know about the importance of environmental hygiene.
- The female health workers' curriculum needs to be strengthened and should include more content regarding effects of plastic use.
- The study also emphasizes the special needs for the preparation of health education material among nursing students who were engaged in school health services.

NURSING ADMINISTRATION

- The health administration of nursing at the national, state, district, institutional and local level should focus their attention on making the public aware regarding hazards of plastic use and its safe disposal.
- The nurse administrator should arrange the appropriate training and teaching material regarding hazards of plastic use and its safe disposal for the school children, parents and the teachers.
- The administrator can organize educational programs in schools and community areas to provide knowledge regarding importance of effects of hazards of plastic use.
- The nurse administrator should motivate the students and make arrangements for periodic health education to the school children regarding environmental hygiene in the school and in their area.
- The nurse administrator should recommend to the superior for the supply of suitable posters, pictures related to plastic use, which can be displayed in the school premises, temples, and in all public areas.

NURSING RESEARCH

- The findings of the study help the professional nurses and the students to develop inquiry by providing a base.
- The study provides baseline for conducting similar studies in different settings.

6.4. RECOMMENDATIONS FOR FURTHER STUDY

On the basis of the present study the following recommendations have been made for further study.

- The study can be repeated on the large scale sample to validate and for better generalization of the findings.
- Descriptive study can be conducted to assess knowledge, attitude and practice of housewives regarding hazards of plastic use and its safe disposal.

- Comparative study may be conducted to find out the similarities or differences between the knowledge and practices of urban and rural people.
- Video Assisted Teaching programme on plastic use can be compared with other teaching Strategies.
- A similar study can be done by using various teaching methods.
- School syllabus may include topic related to plastic use and environmental hygiene.

6.5.CONCLUSION:

The study was conducted to assess the effectiveness of video assisted teaching on level of knowledge of housewives regarding hazards of plastic use and its safe disposal in selected urban area at choolai. The finding of the study showed that the video assisted teaching was very effective in improving the level of knowledge. This study will help the health care professionals to develop appropriate teaching materials. Video assisted teaching is a proven method to improve the knowledge of the housewives which will help to facilitate the healthy growth and development and healthy practices in day to day activities.

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APPENDIX - I
RESEARCH TOOL
PRE TEST QUESTIONNAIRE
PART - A
DEMOGRAPHIC DATA

INSTRUCTIONS:

- Please be frank and free in answering the question.
- Read each item carefully and answer all the questions.
- Answers will be used only for research purpose and will be confidential.
- Please put a tick mark at the appropriate option.
- Please return back the questionnaire after answering all the questions.

QUESTIONNAIRE

SECTION A

SOCIO DEMOGRAPHIC PERFORMA

1. Sample no

2. Name of the sample

3. Age in years

a) 18 – 22 ☐

c) 28 - 32 ☐

b) 23 – 27 ☐

d) Above 32 ☐

4. Education

a) I std – 6th std ☐

c) Diploma ☐

b) 7th std – 12th std ☐

d) Degree ☐

5. Monthly family income

a) <1589 Rs

b) 1590-4726 Rs

e)>11,816Rs

c) 4727-7877 Rs

d) 7878-11,816Rs

6. Religion

a) Hindu

b) Muslim

c) Christian

d) Others

7. Ways of waste disposal, throughing it in the

a) Open land

b) Dust bin

c) Burning

d) Other methods

SECTION - B

GENERAL ASPECTS ON HAZARDS OF PLASTIC USE:

1. Hot food should not be stored in

a) Plastic containers ☐

c) Glass materials ☐

b) Steel container ☐

d) Mud pots ☐

2. When hot foods are packed in plastic boxes

a) Nothing happen ☐

c) Food losses its taste ☐

b) Food losses its colour ☐

d) It melts and mixes with food ☐

3. Plastic when burnt causes

a) Pleasant smell ☐

c) Toxic smoke ☐

b) Dark smoke ☐

d) Ashes ☐

4. The bags made from plastic are more

a) Harmful ☐

c) Safe ☐

b) Useful ☐

d) Clean ☐

5. Plastic indirectly causes germs to

a) Breed and growth ☐

c) Dormancy ☐

b) Death ☐

d) Sterility ☐

6. Plastic affects the

a) Machines, plants and vehicles ☐

c) Buildings, mobiles and television ☐

b) Human beings, environment and animals. ☐

d) Clothes, glass and electricity ☐

II. Common hazards of plastic use

A. Hazards of plastic use on human beings

7. The health problems caused by plastics on human being is

a) Fever and diarrhea ☐

c) Vomiting and constipation ☐

b) Cough and cold ☐

d) Heart diseases and liver problems ☐

8. When human being consume sea animals and fishes which have consumed plastic it causes

a) Physical health problems ☐

c) Insomnia ☐

b) Mental health problems ☐

d) Mild fever ☐

9. Children should not handle

a) Plastic toys to play ☐

c) Toys made of rubber ☐

b) Dolls made of clothes ☐

d) Wooden toys to play ☐

10. Inhalation of the smoke which is released during burning of plastic causes

a) Lung problems ☐

c) Brain damage ☐

b) Vomiting ☐

d) Diarrhoea ☐

B. Hazards of plastic use on coastal region

11. Sea creatures are affected by

a) Plastics ☐

c) Micro organism ☐

b) Dirt ☐

d) Salt in a water ☐

12. Marine animals misunderstand plastic as

a) Fish food ☐

c) Jelly fish ☐

b) Plants ☐

d) Small fish ☐

13. When plastic bags are swallowed by sea creatures they

- | | | | |
|-----------------------|--------------------------|---------------|--------------------------|
| a) Can't able to swim | <input type="checkbox"/> | c) Don't grow | <input type="checkbox"/> |
| b) Become sick | <input type="checkbox"/> | d) Die | <input type="checkbox"/> |

C. Hazards of plastic use on environment

14. Plastic blocks the

- | | | | |
|-----------|--------------------------|---------------|--------------------------|
| a) Roads | <input type="checkbox"/> | c) Traffic | <input type="checkbox"/> |
| b) Drains | <input type="checkbox"/> | d) Water taps | <input type="checkbox"/> |

15. Plastic causes harmful effects on

- | | | | |
|-------------------------|--------------------------|-----------------------------------|--------------------------|
| a) Sun, moon and air | <input type="checkbox"/> | c) Roads , vehicles and buildings | <input type="checkbox"/> |
| b) Land , air and water | <input type="checkbox"/> | d) Schools , hospitals and shops | <input type="checkbox"/> |

16. Plastic which are disposed in the land does affect the

- | | | | |
|---------------------------------|--------------------------|------------|--------------------------|
| a) Landfill operation procedure | <input type="checkbox"/> | c) Traffic | <input type="checkbox"/> |
| b) Building | <input type="checkbox"/> | d) None | <input type="checkbox"/> |

17. The number of years the plastic takes to decompose is

- | | | | |
|--------------|--------------------------|--------------|--------------------------|
| a) 500 years | <input type="checkbox"/> | c) 400 years | <input type="checkbox"/> |
| b) 600 years | <input type="checkbox"/> | d) 200 years | <input type="checkbox"/> |

D. Hazards of plastic use on animals

18. Animals consume plastic markedly by eating

- | | |
|--|--------------------------|
| a) Leftover food discarded in plastic bags | <input type="checkbox"/> |
| b) Plastic cups which are discarded | <input type="checkbox"/> |
| c) Plastic plates which are discarded | <input type="checkbox"/> |
| d) Plastic products such as carry bags | <input type="checkbox"/> |

19. Domestic animals are found dead after

a) Eating from plastic tubs

☐

b) Swallowing bits of plastic

☐

c) Drinking bad water

☐

d) Burning plastics

☐

E. Prevention of hazards of plastic use

20. Plastic bags can be replaced by

a) Rixin bags

☐

c) Polythene bags

☐

b) Nylon bags

☐

d) Paper bags

☐

21. Disposable paper plates and paper cups are

a) Harmful

☐

c) Safe

☐

b) Unsafe

☐

d) Not useful

☐

22. Prevention of hazards of plastic will be done by

a) Reduce the use

☐

c) Recycle

☐

b) Reuse

☐

d) All the above

☐

Key Answers

Question No	Answer keys
1	a
2	d
3	b
4	a
5	a
6	b
7	d
8	a
9	a
10	a
11	a
12	c
13	d
14	b
15	b
16	a
17	c
18	d
19	b
20	d
21	c
22	d

வினாத்தாள்

பிரிவு அ -

புள்ளி விவர ஆய்வு மாற்றுகு

1. சோதனையாளரின் எண்ணிக்கை

2. சோதனையாளரின் பெயர்

3. வயது (வருடங்களில்)

அ) (இ

22 - 18 32 - 28

ஆ) (ஈ

27 - 23 32 <

4. கல்வித்தரம்

அ) 1 - 6 ஆம் வகுப்பு முதல் வரை ஆம் வகுப்பு

ஆ) 7 - 12 ஆம் வகுப்பு முதல் ஆம் வகுப்பு வரை

இ) டிப்ளமோ

ஈ) பட்டப்படிப்பு

5. குடும்ப மாத வருமானம்

அ) <1589 Rs

இ) 4727-7877 Rs

ஆ) 1590-4726 Rs

ஈ) 7878-11,816Rs

உ) >11,816Rs

6. மதம் .

அ) இந்து

இ) கிருஸ்துவ மதம்

ஆ) முஸ்லீம்

ஈ) மற்றவை

7. குப்பை கொட்டும் முறை .

அ) திறந்த நிலத்தில்

இ) எரிக்கும் முறை

ஆ

குப்பை தொட்டி

ஈ) மற்றவை

பிரிவு ஆ

பிளாஸ்டிக் பொருளினால் ஏற்படும் தீங்குகள் பற்றி பொதுவானக் கருத்து

.1தூடான உணவுப் பொருள் இதில் சேமிக்க கூடாது

அபிளாஸ்டிக் பொருளினால் ஆன கொள்கலன் (

ஆத்திரங்கள்உலோகப் பா (

இகண்ணாடிப் பாத்திரங்கள் (

ஈமண் பாத்திரங்கள் (

.2பிளாஸ்டிக் பொருளினால் ஆன பாத்திரத்தில் தூடான உணவுப்பண்டங்கள் கட்டும் போது

அஒன்றும் நிகழாது (

ஆஉணவுப்பொருள் தனது நிறத்தை இழந்து விடும் (

இவிடும் உணவுப்பொருள் தனது சுவையை இழந்து (

ஈ(பிளாஸ்டிக் பொருள் இளகி உணவுடன் கலந்து விடும்.

.3பிளாஸ்டிக் பொருளினால் எரிக்கும்போது உண்டாவது

அநறுமணம் .

ஆநச்சுப்புகை .

இ கரும்புகை .

ஈ சாம்பல் .

.4பிளாஸ்டிக் பொருளினால் ஆன மெல்லிய பைகளால் ஏற்படும் விளைவு

அ தீமையானது .

இபாதுகாப்பானது .

ஆ நன்மையானது .

ஈதூய்மையானது .

.5பிளாஸ்டிக் பொருளினால் மறைமுகமாக உருவாகும் கிருமிகளில் ஏற்படும் விளைவு

அ வளர்ச்சி /இனப்பெருக்கம் .

இசெயலிழப்பு .

ஆ இறப்பு .

ஈமலட்டுத்தன்மை .

.பிளாஸ்டிக் பொருள் எதை பாதிக்கிறது.

அம் வாகனங்கள்தாவரங்கள் மற்றும்,கருவிகள் .

ஆசுற்றுச்சூழல் மற்றும் மிருகங்கள்,மனிதர்கள் .

இகைபேசிகள் மற்றும் தொலைக்காட்சிகள்,கட்டிடங்கள் .

ஈ.கண்ணாடி மற்றும் மின்சாரம் ,ஆடைகள் .

அபிளாஸ்டிக் பொருளினால் மனிதனிடையே ஏற்படும் தீங்குகள் .

.7பிளாஸ்டிக் பொருளை மனிதன் பயன்படுத்துவதால் ஏற்படும் தீங்குகள்

அகாய்ச்சல் மற்றும் வயிற்றுப்போக்கு .

ஆசளி மற்றும் இருமல் .

இவாந்தி மற்றும் வயி .ற்றுக்கடுப்பு

ஈஇதய நோய்கள் மற்றும் கல்லீரல் பிரச்சினைகள் .

.8பிளாஸ்டிக் பொருளை உட்கொண்ட கடல்வாழ் உயிரினங்கள்

மற்றும் மீன்களை மனிதர்கள் பயன்படுத்தும்போது ஏற்படும் விளைவு

அ உடல் நலக் குறைவு .

இஇருமல் .

ஆமன நலக் குற .ைவு

ஈகுறைவான காய்ச்சல் .

.9பிள்ளைகளுக்கு இதை கொடுக்கக்கூடாது

அவிளையட்டுப்பொருட்கள் பிளாஸ்டிக் பொருளினால் ஆன .

ஆதுணி .களால் ஆன பொம்மைகள்

இரப்பரினால் ஆன பொம்மைகள் .

ஈமரத்தினால் ஆன பொம்மைகள் .

.10பிளாஸ்டிக் பொருளினை எரிக்கும்போது உருவாகும் புகையினை
சுவாசிப்பதினால் ஏற்படும் விளைவுகள்

அ நுரையீரல் பாதிப்பு (

இமூளைபாதிப்பு (

ஆ

வாந்தி (

ஈவயிற்றுப்போக்கு (

**ஆ கடற்கரையோரம் சார்ந்த .பகுதிகளிள் பிளாஸ்டிக் பொருளினை
பயன்படுத்துவதால் ஏற்படும் தீமைகள்.**

.11கடல்வாழ் உயிரினங்கள் எவற்றால் பாதிக்கப்படுகிறது

அ

பிளாஸ்டிக் .(

இநுண்ணியிரிகள் .

ஆ கழிவுகள் .(ஈநீரில் உள (்ள உப்பு

.12பிளாஸ்டிக் பொருளினை கடல் வாழ் உயிரினங்கள் எவ்வாறு தவறாக கருதுகிறது

அ மீன் உணவு .(இஜெல்லி மீன்கள் (

ஆ தாவரங்கள் .(ஈசிறு மீன்கள் .(

.13கடல் வாழ் உயிரினங்கள் பிளாஸ்டிக் பொருளை விழுங்கும்போது ஏற்படும் விளைவு

அ நீந்த இயலா ல .(இவளர்ச்சியின்மை .(

ஆ படுதல்உடல் நலம் பாதிக்கப் .(ஈஇறப்பு .(

இபிளாஸ்டிக் பொருளை பயன்படுத்துவதால் சுற்றுச்சூழலில் ஏற்படும் தீங்குகள்

.14குழைத்து உருவாக்கப்பட்ட வார்ப்பு பொருள் எதை தடைபடுத்துகிறது

அ சாலைகள் .(இ போக்குவரத்து .(

ஆ சாக்கடைகள் .(ஈதண்ணீர் குழாய்கள் .(

.15பிளாஸ்டிக் பொருள் எதில் தீமையை விளைவிக்கிறது

அகாற்று,சந்திரன்,சூரியன் .(

ஆதண்ணீர்,காற்று ,நிலம் .

இகட்டிடங்கள்,வாகனங்கள்,சாலைகள் .

ஈகடைகள்,வமனைகள்மருத்து,பள்ளிகள் .(

.16பிளாஸ்டிக் பொருள் நிலத்தில் படிவதால் எதில் பாதிப்பு ஏற்படுகிறது

அ உரம் மாற்றும் முறையை இபோக்குவரத்து .(

ஆ கட்டிடங்க ஈஎதுவும் இல்லை .(

.17பிளாஸ்டிக் பொருள் மக்குவதற்கு எடுத்துக்கொள்ளும் காலம்

அ 500 .(இ400 .

ஆ 600 .(ஈ200 .(

ஈபிளாஸ்டிக் பொருளை வி .லங்குகள் பயன்படுத்துவதால் ஏற்படும் தீமைகள்

.18பிளாஸ்டிக் பொருளை விலங்குகள் பின்வருவனவற்றுள் எதை உணவாக உட்கொள்ளும் போது பிளாஸ்டிக் உட்செள்கிறது

அபிளாஸ்டிக் பொருளில் .(வைக்கப்பட்ட மீதமான உணவு

ஆபிளாஸ்டிக் பொருளால் ஆன எறியப்பட்ட குவளை .

இபிளாஸ்டிக் பொருளால் ஆன எறியப்பட்ட தட்டு

ஈபிளாஸ்டிக் பொருளால் ஆன பைகள் .(

.19வீட்டு விலங்குகள் இதை உண்பதால் இறப்பு ஏற்படுகிறது

அப (ிளாஸ்டிக் பொருளால் ஆன கொள்கலனில் உள்ள உணவு பொருளை உண்பதால்

ஆபிளாஸ்டிக் பொருளால் ஆன துண்டினை உண்பதால் .(

இஅசுத்த நீரை பருகுவதால் .(

ஈபிளாஸ்டிக் பொருளினை எரிப்பதினால் .(

உதீமைகளை தடுத்தல் பிளாஸ்டிக் பொருளினாலான ஏற்படும் .

.20 பிளாஸ்டிக் பொருளுக்கு பதிலாக எப்பொருள் பயன்படுத்தப்படுகிறது

அ ரெக்சின் பைகள் .(

இபாலித்தின் பைகள் (

ஆ நைலான் பைகள் .(

ஈகாகிதப் பைகள் .(

.21பயன்படுத்தி எறியப்படும் காகித தட்டுகள் மற்றும் காகித குவளைகளினால் ஏற்படும் விளைவு

அபாதுகாப்பானது.(தீமையானது

இ .(

ஆபாதுகாப்பற் .(றது

ஈஉபயோகமில்லாதது.(

.22பிளாஸ்டிக் பொருளினால் வரும் தீமைகளை இவ்வாறு தடுக்கலாம்

அபிளாஸ்டிக் பொருளின் உபயோகத்தை குறைப்பது .(

ஆமறுமுறை உபயோகித்தல் .(

இமறுசுழற்சி செய்வது .(

ஈஇவை அனைத்தும் .(



APPENDIX II

SUMMARY OF VIDEO ASSISTED TEACHING PROGRAMME ON HAZARDS OF PLASTIC USE AND ITS SAFE DISPOSAL

INTRODUCTION:

Plastics are available in different sizes , shapes and colours and because of their light weight, flexibility and low cost. Housewives play a vital role in family and in community and what they learn is likely to be applied during the rest of their lives. When taught about the essential things of the society such as hazards of plastic use and its safe disposal they can become agents of the big change for a better future.

What is a plastic?

As plastic material is any of a wide range of synthetic or semi synthetic organic solids used in the manufacture of industrial products .

Uses of plastic:

i) Plastic as storage container:

The comfort able and attractive plastic containers are widely used for storing food stuffs and they also add to the comfort by being used as microwave vessels.

ii) Shopping:

Plastic wraps are easier and safer. They make shopping enjoyable and attractive.

iii) Dent Resistant Body Panel:

Plastics in portable phones and computers and refrigerators and in dishwashers are long lasting and resist corrosion.

iv) Store water and juices :

Plastic bottles are used in kitchens to store water and juices in refrigerators.

COMMON HAZARDS OF PLASTIC:

- ✓ Hazards of plastic use on human beings
- ✓ Hazards of plastic use on coastal region
- ✓ Hazards of plastic use on environment
- ✓ Hazards of plastic use on animals.

HAZARDS OF PLASTIC USE ON HUMAN BEINGS:

Bisphenol A is a chemical component which is used in the manufacture of plastic products. This component interferes with the body's natural hormonal messaging system. It has been linked to various health problems like heart problems , diabetes mellitus ,liver problems and also affects the children causing down syndrome and hormonal problems. In women plastics pose serious hazards like breast and uterine cancer ,increased risk of miscarriage and decreased testosterone levels.

When food is cooked in plastic vessels it melts and mixes with the food and can cause deleterious effects to human health.

Burning plastics may even result in infertility in human beings.

HAZARDS OF PLASTIC USE ON COASTAL REGION:

Many marine infected organisms were found with plastic fragments in the stomach and plastic molecules in their muscles.

Turtles, dolphins, and many other marine creatures often mistake small plastic bags for jelly fish after swallowing them they develop intestinal blockade which often lead to death.

The sea creatures such as fishes and whales consume plastic along with their food which affects their health.

The wastes from the different domestic and industrial areas are thrown into the seas and the plastic bags and products in the wastes float back to the shore causing unhygienic and untidy appearance to the coastal area.

HAZARDS OF PLASTIC USE ON ENVIRONMENT :

Plastic waste blocks drains and gutters ,stopping the flow of rain water and sewage causing an overflow which becomes the breeding ground for germs and bacteria causing many diseases.

Plastic bags that fly and land in agricultural land retard the growth of the crops by wrapping itself around the plants.

Plastic bags take 500 years to decompose,and so the fertility of the soil and the ground water are affected.

HAZARDS OF PALSTIC USE ON ANIMALS:

Domestic animals like cows and goats often found dead after swallowing bits of plastic that gets mingled with the grass they eat.

Leftover foods are often thrown away in plastic bags and cats and dogs which consume this also die.

Birds get entangled in the plastic bags which fly in the air and it affects their flight and cause them to die.

PREVENTION OF HAZARDS OF PLASTIC USE:

- Find alternatives to plastic products wherever possible.
- Avoid the use of thin plastic carry bags
- Avoid the use of disposable plastic cups and plates
- Switch over to cloth,jute paper and glass products.
- Buy food in metal or plastic containers
- Avoid polycarbonate drinking bottles
- Avoid heating food in plastic containers
- Dont give children plastic teathers or toys
- Reduce the plastic use, reuse,and recycling the plastics will help to prevent the hazards of plastics.

SUMMARY:

So far we have seen about the definition of the plastic,the uses of the plastic,the major hazards that plastic pose and their preventive aspects.

CONCLUSION:

Plastic have become universal and life without them seems impossible to man and little does one realize that plastics are hazardous. Housewives are the important persons in the community area and they make a greater impact on the society. Teaching them the hazards of plastic use will help us take a giant leap in forming a greener world to live in.

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முன்னுரை:

பிளாஸ்டிக் பொருட்களை உபயோகப்படுத்துவதினால் கழிவு நீர் மற்றும் மழை நீர் அதில் தேங்கி .நோய் வருவதற்கு முக்கியமான காரணியாக உள்ளது , பிளாஸ்டிக் பைகள் தேவைக்கேற்ற அளவிலும், வடிவத்திலும் எளிதில் , மக்கள் அதை அதிக அளவில் ,உபயோகப்படுத்தக் கூடியதாகவும் உள்ளதால் இன்றைய இல்லத்தரசிகள் சமூகத்தில் முக்கியமான .பயன்படுத்துகிறார்கள் எனவே பிளாஸ்டிக் பொருட்களை உபயோகப்படுத்துவதினால் ,அங்கத்தில் உள்ளனர் உண்டாகக்கூடிய எதிர்விளைவுகளைப் பற்றி அவர்களிடம் எடுத்துக் கூறுவதன் மூலம் மாற்றத்தைக் கொண்டு வந்து வளமான எதிர்காலத்தை உருவாக்கமுடியும்.

பிளாஸ்டிக் என்றால் என்ன?

பிளாஸ்டிக் என்பது ஒரு செயற்கையான முறையில் தொழிலக பயன்பாட்டுக்காக உருவாக்கப்படும் ஒரு வகை திண்மப் பொருளாகும்.

பிளாஸ்டிக்கின் பயன்கள்:

1. வீடு கட்டுவதற்கு பிளாஸ்டிக்கை உபயோகப்படுத்துவதினால் மின்சாரம் மற்றும் எரிபொருள் உபயோகத்தைக் குறைக்கிறது.
2. பொருட்களை எடுத்து செல்வதற்கு மிகவும் எளிமையான உபகரணமாகும்.
3. தொலைப்பேசி குளிர்சாதனப்பெட்டி மற்றும் சமையல் , கணினி , உபகரணங்களில் பிளாஸ்டிக்கைப்பயன்படுத்துவதினால் அதிக நாட்கள் உபயோகப்படுத்தக்கூடியதாகவும் .இருக்கும் துருப்பிடிக்காமலும் ,
4. பொருட்களை பத்திரமாகவும் சூடு குறையாமல் எடுத்துச் செல்லவும் , உதவுகிறது

எதிர் விளைவுகள்:

1. மனிதர்களுக்கு ஏற்படும் தீங்குகள்
2. கரையோர நிலங்களுக்கு ஏற்படும் தீங்குகள்
3. சுற்றுச்சூழலில் ஏற்படும் மாற்றங்கள்
4. விலங்குகளுக்கு ஏற்படும் தீங்குகள்

மனிதர்களுக்கு ஏற்படும் தீங்குகள்:

பிளாஸ்டிக் தயாரிப்பதற்கு பிஸ்பினாயில் - எ என்னும் ஒருவகை வேதிப்பொருள் பயன்படுத்தப்படுகிறது ,அந்த வேதிப்பொருளானது இதய நோய் . வளரும் குழந்தைகளிடையே மூளை , கல்லீரல் மாறுபாடுகள் முதல் ,சர்க்கரை நோய் நோய்கள் மற்றும்ஹார்மோன் பிரச்சினைகள் வரை பல்வேறு நோய்கள் ஏற்பட முக்கிய காரணமாகும்அது மட்டுமில்லாமல் . மார்பகம் மற்றும் கர்ப்பை புற்று நோய்பிளாஸ்டிக் பொருட்களில் .கரு கலைதல் ஆகியவை ஏற்படும் வாய்ப்பு உள்ளது, சமைக்கக்கூடிய உணவுப்பொருட்களில் சூடு காரணமாக பிளாஸ்டிக் உருகி .பொருட்களில் கலந்து நோய் வரக்கூடிய அபாயம் உள்ளதுஉணவுப்

பிளாஸ்டிக் பொருட்களை எரிப்பதன் மூலம் மனிதர்களுக்கிடையே மலட்டுத்தன்மை ஏற்படுகிறது.

2. கரையோர நிலங்களுக்கு ஏற்படும் தீங்குகள்:

கரையோரப் பகுதிகளில் உள்ள உயிரினங்களில் வயிறு மற்றும் தசைப் பகுதிகளிலும் பிளாஸ்டிக் துகள்கள் கண்டறியப்பட்டது.

கடல் ஆமைகடல் மீன் மற்றும் கடல் சார்ந்த உயிரினங்கள் சிறிய , பிளாஸ்டிக் பைகளை ஜெல்லி மீன் என நினைத்து அதனை விழுங்குவதால் அதன் .ல் பகுதிகளில் அடைப்பு ஏற்பட்டு இறந்து விடுகிறதுகுட

விலங்குகள்திமிங்கலம் மற்றும் கடல் மீன்கள் போன்றவை ,மீன்கள் , உணவோட ு சேர்த்து பிளாஸ்டிக்கையும் உண்பதால் அவைகளுக்கு உடல் சார்ந்த நலத்திலும் பாதிப்படைகிறது குப்பை மற்றும் கழிவுப்பொருட்களைக் கடலில் .

பாதி , கொட்டுவதால் அதிலுள்ள பிளாஸ்டிக் பைகள் கடலில் மிதந்து கொண்டும் .பிளாஸ்டிக் பொருட்கள் கரையோரத்திலும் தங்கிவிடுகிறது

.3 சுற்றுச்சூழலில் ஏற்படும் மாற்றங்கள்:

பிளாஸ்டிக் கழிவுகளின் அடைப்புகளால் சாக்கடைகள் மற்றும் நீர்த்தாரைகளில் நீரோட்டத்தைத் தடுக்கின்றதுஇதன் மூலம் நுண்கிருமிகள் மற்றும் பாக்டீரியா வளர்வதற்கு ஏற்ற சூழ்நிலை உண்டாக்கப்பட்டு . நோய்கள் பரவுகின்றன,

பிளாஸ்டிக் பைகள் அங்கும் இங்குமாக பறந்து விவசாய நிலத்தை அடைந்து.விதைகள் வளரவிடாமல் தடுக்கிறது ,

திரும்ப உபயோகித்தல் மற்றும் மறுசுழற்ச்சியைக் குறைத்தல் என்பது சுற்றுச்சூழலின் தாரக மந்திரம் ஆகும்ஆனால் பிளாஸ்டிக் பாட்டில்களைத் திரும்ப . திரும்ப பயன்படுத்துவதால்அது தீங்கு விளைவிக்கக்கூடிய வேதிப்பொருட்களை , .விளைவிக்கின்றது வெளிவிட்டு மிகவும் மோசமான தீங்குகளை

பிளாஸ்டிக் பைகள் எத்தனை வருடங்கள் ஆனாலும் சிதையக்கூடியதல்லமேலும் .இதனால் மண்ணின் ஊடுருவும் தன்மை குறைகிறது . .இயற்கையைச் சீரழிக்கிறது ,நிலத்தடி நீரின் சரிவிகித அளவைத் தடுக்கிறது

.4விலங்குகளுக்கு ஏற்படும் தீங்குகள்:

வீட்டு விலங்குகளான பசு மற்றும் ஆடு பிளாஸ்டிக் பொருட்களைப் , .புற்களோடு சேர்ந்து உண்பதால் அது இறப்பதற்குக் கூட வாய்ப்புள்ளது

மீதுமுள்ளவீணான உணவுப்பொருட்கள் பிளாஸ்டிக் பைகளின் மூலம் , கீழே போடுவதால் பூனை மற்றும் நாய்கள் அதை உண்ணும்பொழுது மிகவும் மெல்லியதாக உள்ள பிளாஸ்டிக் அதனுடன் சேர்ந்து உண்ணப்படுவதால் இறக்க நேரிடுகிறது.பறவைகள் சிக்கல்களுக்கு உண்டாக்கப்படுகிறது .

பிளாஸ்டிக்கினால் ஏற்படும் விளைவுகளை தடுக்கும் முறைகள்:

- பிளாஸ்டிக் பை மற்றும் பொருட்களுக்கு பதிலாக வேறு எந்த பொருட்களை உபயோகிப்பது என்று தீர்மானிக்கவேண்டும்.
- மிகவும் மெல்லிய பிளாஸ்டிக் பைகள் உபயோகிப்பதை தடுக்க வேண்டும்.
- பயன்படுத்தி எரியக்கூடிய கிண்ணங்கள் மற்றும் தட்டுகள் போன்றவற்றை உபயோகிப்பதை தடுக்க வேண்டும்.
- துணிசணல் பை மற்றும் கண்ணாடியாலான பொருட்களைப் பயன்படுத்த , .ஆரம்பிக்க வேண்டும்
- உலோகத்தால் ஆன பாத்திரங்களில் மட்டுமே உணவுப்பொருட்களை வாங்கவேண்டும்.
- குளிர்பானங்கள் உள்ள பிளாஸ்டிக் பாட்டில்களை தண்ணீர் குடிக்க உபயோகிப்பதை தடுக்கவேண்டும்.
- பிளாஸ்டிக் பாத்திரங்களில் உணவு சம்பந்தமான பொருட்களைத் தயாரிப்பதையோ,சூடுபடுத்துவதையோ தவிர்க்கவேண்டும் ,
- குழந்தைகளுக்கு எந்தவிதமான பிளாஸ்டிக் விளையாட்டுப் பொருட்களை எக்காரணம் கொண்டும் கொடுக்கக்கூடாது .
- பிளாஸ்டிக் பொருட்களின் உபயோகத்தை குறைப்பதுவேறுவகையில் , மறுசுழற்சிக்கு அனுப்புவதன் மூலம் பிளாஸ்டிக்கினால் ,உபயோகிப்பது .ஏற்படும் விளைவுகளை தடுக்கலாம்